

DISCOVER ISLAM
By Hossam Ganby



Nasa In The Mars find one ALLAH NAME (Sobhane All...



2,237 VIEWS

6 LIKES, 2 DISLIKES



Boutkourt

June 26, 2009



Nasa In The Mars find one ALLAH NAME (Sobhane Allah !)

Mars! Filmpje over een geschrijvende naam van Allah (Sobhanne ALLAH God in Arabisch geschrijven door de waiende wind en storm! Ook die zich zo hard wait door bergen en het zand en stenen op Mars! meer is er niks bijzonders of levens op mars behalve het woord van Allah (Sob7anne Allah)!,

RELATED

COMMENTS



09:52

A Jew explains why Allah is the one and only God

Qa3Qaa3

5 years ago | 322,967 views

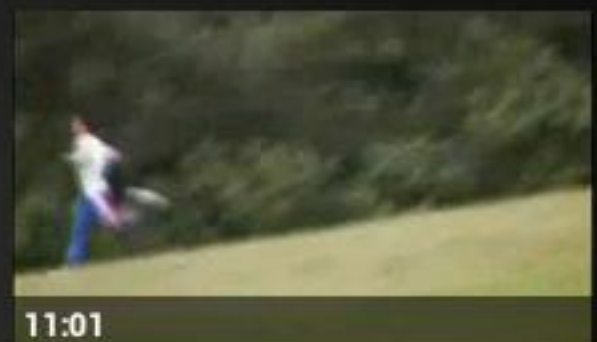


05:39

A Tauba Tegen Film Fitna Geert Wilders, Tegen Wereld wildaad

Boutkourt

5 years ago | 8,362 views



11:01

Boutkourt Marokkaans Nederlands

Boutkourt

5 years ago | 1,334 views



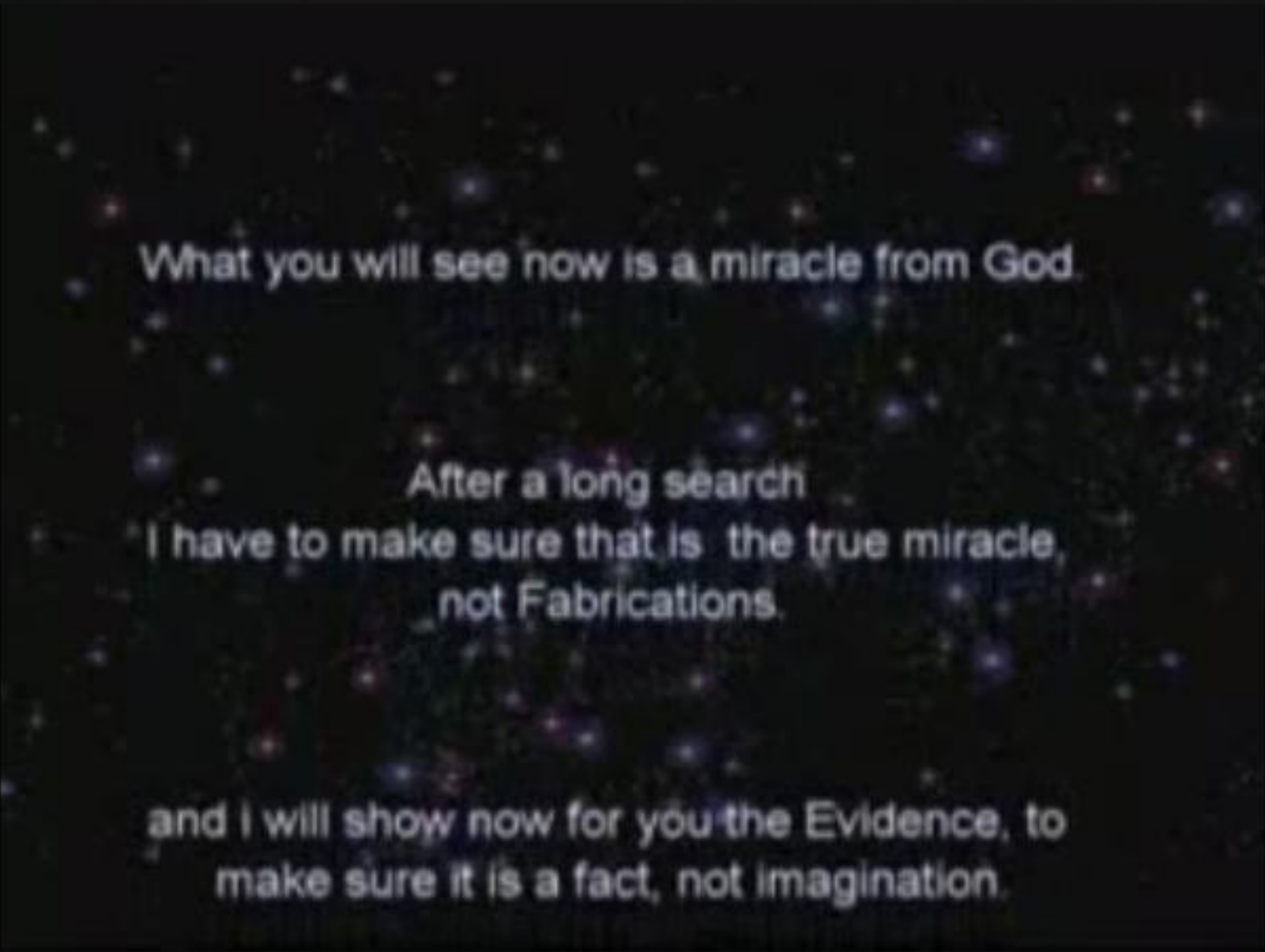
04:52



06:33



00:49



⏮

PLANET MARS -Miracle of Allah-.flv

👍👎

1,368 VIEWS

3 LIKES, 3 DISLIKES



PROUD2BAHMADI
February 10, 2010

PLANET MARS -Miracle of Allah-.flv
Islam is only a true religion

RELATED

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08:51

Qadiyanioon Ka Asal Chehra.flv
Qadiani against Shia
PROUD2BAHMADI
3 years ago | 728 views

07:54

Iron Miracle of Quran.Islamic
miracles(proved by science).flv
PROUD2BAHMADI
3 years ago | 12,204 views

02:21

Siasat.pk • View topic - Why Muslim
Dont eat Pork 2 min vdo.flv
PROUD2BAHMADI
3 years ago | 130 views

10:30

more mars rovers's cutting scene
FACE
NASA

07:27

00:56




⏸

MARS phoenix Opens Its Eyes may/25/2008 Allah

👍 🗨

23,365 VIEWS

37 LIKES, 14 DISLIKES



MOELEBNAN

May 27, 2008

▶

MARS phoenix Opens Its Eyes may/25/2008 Allah
Mars may/25/2008
Phoenix Opens Its Eyes
This image, one of the first captured by NASA's Phoenix Mars Lander
Allahs Name

RELATED

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1:48:56

MISSION TO MARS 2000 FULL MOVIE

Tim Reeves

6 months ago | 478,291 views



09:52

A Jew explains why Allah is the one and only God

Qa3Qaa3

5 years ago | 322,967 views




07:57

God's miracle on planet mars!

Unzarjer

5 years ago | 126,135 views



07:30

you can also see some "organic



06:33



59:31

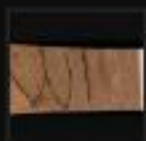


MARS phoenix Opens Its Eyes may/25/2008 Allah



23,365 VIEWS

37 LIKES, 14 DISLIKES



MOELEBNAN



May 27, 2008

MARS phoenix Opens Its Eyes may/25/2008 Allah

Mars may/25/2008

Phoenix Opens Its Eyes

This image, one of the first captured by NASA's Phoenix Mars Lander
Allahs Name

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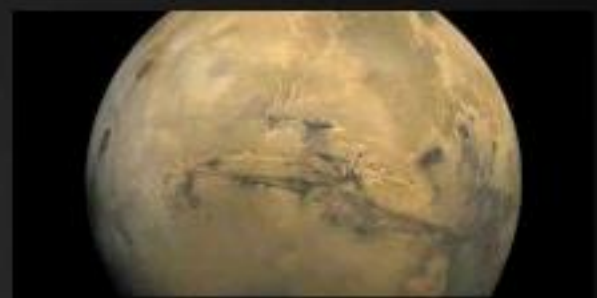


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you can also see some organic



06:33



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9:48 AM





God's miracle on planet mars!



126,135 VIEWS

200 LIKES, 399 DISLIKES



Unzarjer

February 28, 2008



God's miracle on planet mars!

you will see miracle.
with evidence

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09:52

A Jew explains why Allah is the one
and only God

Qa3Qaa3

5 years ago | 322,967 views



10:00

اصوات غريبة من كوكب المشتري ترصدها ناسا

AmiraDana

4 years ago | 1,367,912 views



07:13

Neil Armstrong interview, BBC 1970.

G0tta12

2 years ago | 664,544 views



1:48:56



07:30

you can also see some "organic



04:40



About Planet Mars

Mars is the fourth planet from the sun.

The planet is one of Earth's "next-door neighbors" in space.



Islam Miracle - Muhammad [saw] Name on Mars 2010



44,622 VIEWS

82 LIKES, 34 DISLIKES



SaladinAlKurdi

January 22, 2010



Islam Miracle - Muhammad [saw] Name on Mars 2010

NASA Photos shows clearly the Name of Prophet Muhammad Peace be upon him on planet Mars 2010

<http://www.quranexplorer.com>

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allah islam miracle wonders NASA
msben64

6 years ago | 1,271,442 views



09:59

Bible errors vs. Qur'an Accuracies.
Earth, sun, stars, moon Scientific...

DiscoverIslam100
3 years ago | 29,755 views



09:34

Miracle of Islam : Ka'bah, The Center
of the Earth, Astonomical proven

Zahraa Al-Batoul
2 years ago | 156,663 views



04:17



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07:54



9:49 AM





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Islam Miracle - Muhammad [saw] Name on Mars 2010

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82 LIKES, 34 DISLIKES



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07:54



The God said in Quran:

We shall show them Our portents on the horizons
and within themselves until it will be manifest
unto them that it is the Truth. Doth not thy Lord
suffice, since He is Witness over all things (53)

Fussilat, (53)



Islam Miracle - Muhammad [saw] Name on Mars 2010



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82 LIKES, 34 DISLIKES



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07:54



9:51 AM





The miracle is:

You can read Name of Mohammed on Planet Mars!



Islam Miracle - Muhammad [saw] Name on Mars 2010



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82 LIKES, 34 DISLIKES



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2 years ago | 156,663 views



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Milad 2007, The Word MUHAMMAD S.a.w.w. on the Sky.



386,749 VIEWS

339 LIKES, 20 DISLIKES



Sarmad Javed

May 5, 2008

Milad 2007, The Word MUHAMMAD S.a.w.w. on the Sky.

Following event happened in midnight of 12th Rabi-ul-Awwal at 3:50 A.M PST, during the speech of Dr. Muhammad Thair-ul-Qadri at Minar-e-Pakistan, At that time he was speaking about word "Muhammad (saw) and its significance" ARY digital TV was Live casting the conference . Millions of people directly and through Television witnessed it, this event saved by hundred of photographers, video recording also available. Many newspapers in Pakistan also reported the scene. Dr. Muhammad Tahir-ul-Qadri strongly condemned for those who is trying to associate it

RELATED

COMMENTS



06:06

prophets grave

333563

4 years ago | 2,298,371 views



01:11

انسان بعیش علی المریخ

شبكة العلوم

5 years ago | 1,290,817 views



00:48

Tawaf in Kaba (close Video

shafqatullah1

2 years ago | 474,754 views



09:23

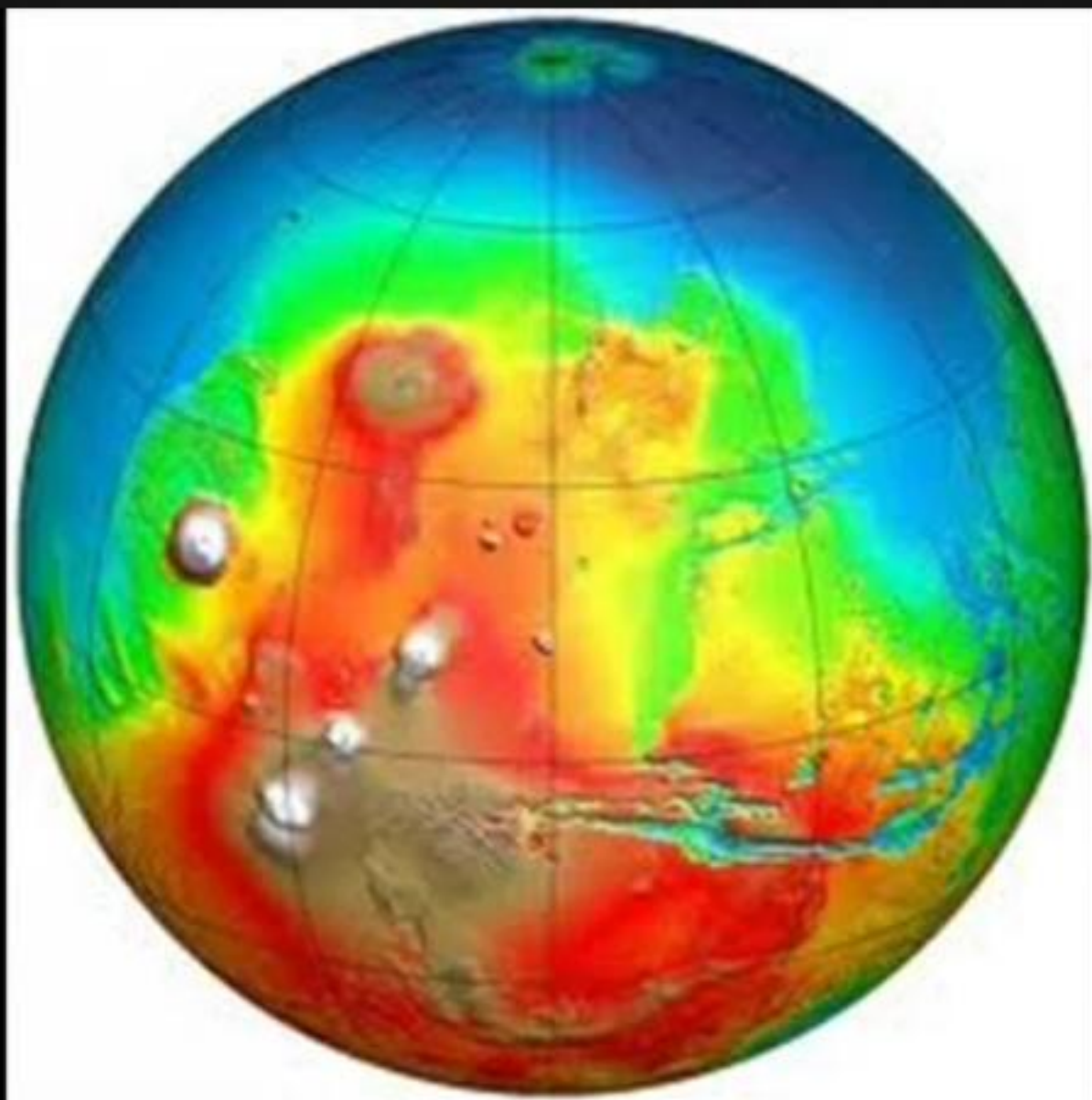


00:23



01:37

STILL CAN'T SEE THE FACE!



Breaking News 2013 NASA: Name Of Prophet Moham...



3,165 VIEWS

13 LIKES, 1 DISLIKES



AmerMHamadi

October 23, 2012



Breaking News 2013 NASA: Name Of Prophet Mohammed on Mars Miracle of Islam

To confirm that these photos are original, just google images for "Mars topographic map" and you'll find hundered of this crater topographic image taken by NASA .

This is the biggest and deepest known vally in our solar system, it's name is "Valles Marineris" and it is exactly matched name "Mohammed" in Arabic.

RELATED

COMMENTS



05:55

MIRACLE OF ALLAH islam baby dilaverbela

3 years ago | 864,902 views



03:21

Indian Trying To Burn Hijab! Hijab Miracle! ALLAH IS THE GREATEST!

EhsanDuhokiKurd

3 months ago | 13,756 views



1:13:45

Exclusivité: prophete ONEZIME face à la presse dans l'affaire qui...

Ntanga Nsongi

3 weeks ago | 7,113 views



06:13



04:27



02:37



MEMPHIS PROJECT

Dr. 'Abd Al-Baset Sayyid
Egyptian National
Research Center

Al-Majd TV (Saudi Arabia)
January 16, 2005



NASA Discovered Kabah Emmiting Powerfull Invisible...



156,514 VIEWS

556 LIKES, 160 DISLIKES



AhmadDeedat786

November 21, 2008



NASA Discovered Kabah Emmiting Powerfull Invisible Energy Way Beyond NASA Kan Even See

More And More NASA Scientists Are Reverting And Accepting Islam Upon Diskovering Scientifik Evidences That Are Konfirming The Authenticity Of The Holly Qur'an.

This News Of Kabah Lokated in Mecca (Saudi Arabia) Has Been Kep Ver Quiet In The Main Stream Media To PRevent Mankind Diskovering The Truth. But The Truth Is Prevailing & Muslims & non-Muslims All Are Komming to The Truth.

RELATED

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Quran miracle, Talking ants, Scientific discovery in 2009, proof...

skakvac

2 years ago | 86,364 views



02:56

What does NASA say about Moon's ancient past, Moon splitting in Quran

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2 years ago | 43,137 views



07:13

Neil Armstrong interview, BBC 1970.

G0tta12

2 years ago | 664,544 views



00:41



05:47



00:23



10:05 AM



Translated by
memritv.org



The centrality (of Mecca) has
been proven scientifically. How?



NASA Discovered Kabah Emmiting Powerfull Invisible...



156,514 VIEWS

556 LIKES, 160 DISLIKES



AhmadDeedat786

November 21, 2008



NASA Discovered Kabah Emmiting Powerfull Invisible Energy Way Beyond NASA Kan Even See

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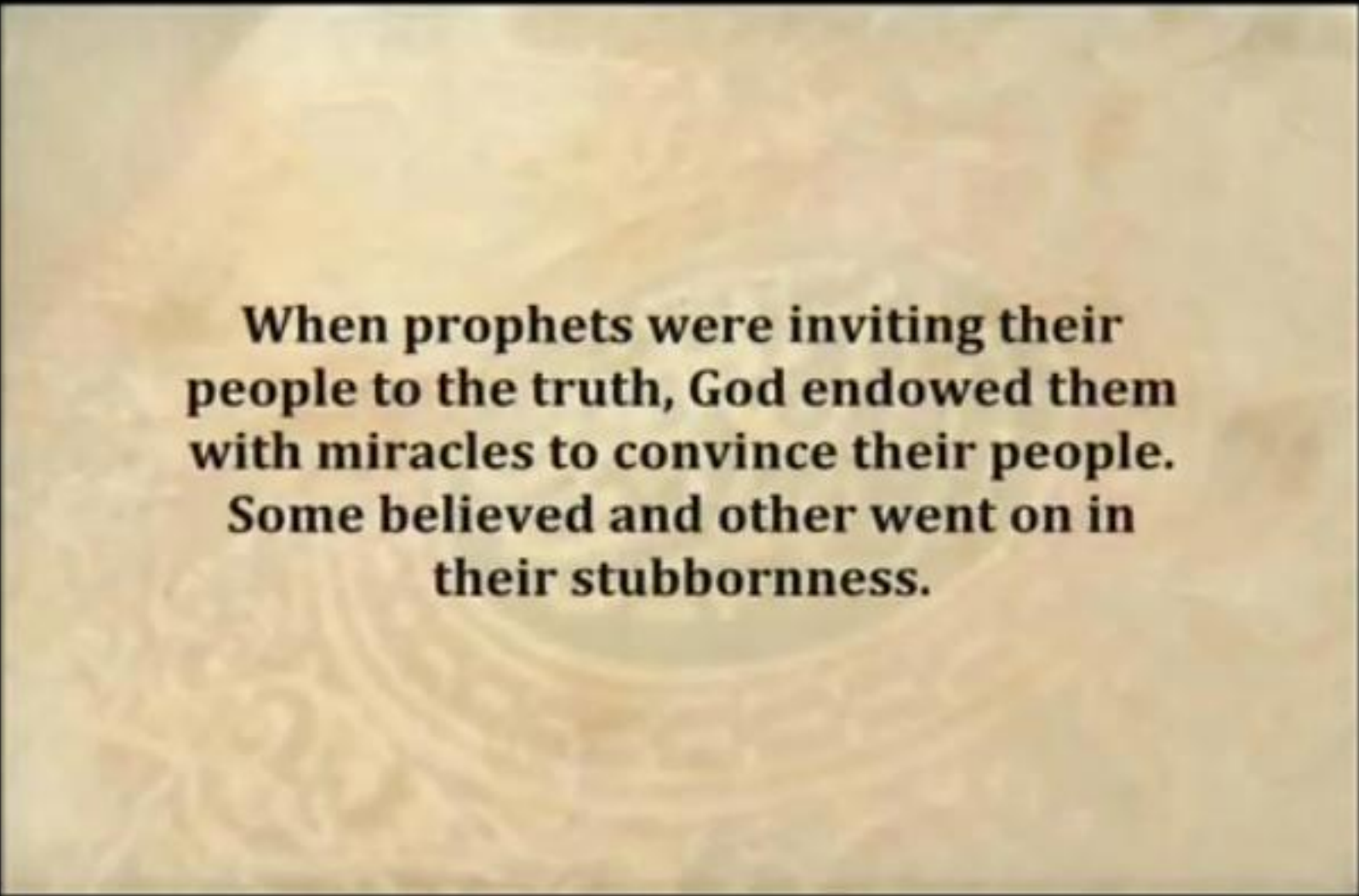
00:41



05:47



00:23



⏸

Atheist's worst nightmare!NASA confirms Quran desc...

👍

👎

522,777 VIEWS

0 LIKES, 0 DISLIKES

TheAtheistsNightmare

February 20, 2011

Atheist's worst nightmare!NASA confirms Quran description to BLACK HOLES!OPEN CHALLENGE TO ATHEISTS

Here is an unexpected BLOW to atheists! NASA confirms the Quran's description to black holes!!

PRECISE MENTIONING OF "BLACK HOLES" BY THEIR NAME AND FUNCTION IN THE NOBLE QURAN!:

http://www.answering-christianity.com/black_holes.htm

RELATED

COMMENTS

00:48

Atheism Destroyed in Under 50 seconds (See Description: Atheists...
TheDemonicSoulOne
3 years ago | 788,415 views

1:33:44

Alien Planet "Full Documentary"
MrSaunders2020
2 years ago | 8,890,669 views

01:22

Disproving Atheists in 82 seconds!
ARMYofJESUSisISLAM Yildiz
2 years ago | 967,674 views

02:38

00:34

08:58

88

10:06 AM



The picture is taken by the NASA Hubble

NGC 6543

PN69-01a - ST ScI CPO - January 1995 - P. Harrington (ST/NO, NASA)

HST - WFPC2

12/1994 ag



NASA amazing discovery



8,797 VIEWS

22 LIKES, 13 DISLIKES



moh97gt

August 20, 2009



NASA amazing discovery

055.037-When the sky is rent asunder, and becomes rose-colored like oil

055.038- Then which of the favours of your lord will you deny

The picture was taken by the NASA Hubble Space Telescope of the "Cat's Eye Nebula", an exploding star 3,000 light years away.

RELATED

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01:51

Dying Nasa Scientist shows how to contact beings

nasajim108

4 years ago | 1,064,229 views



00:41

GREATEST ISLAMIC MIRACLES (MUSLIMS MUST WATCH!)

TottingCowboy

5 years ago | 3,247,176 views



03:42

Miracle Of Allah- Ruku Tree outlandisc

5 years ago | 721,445 views



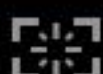
05:25



02:13



08:58



10:08 AM





Rose Nebula." As the Quran states in Surah

NGC 6543

FR86-01a - ST Sci OPO - January 1990 - P. Harrington (JPL/MOS, NASA)

HST - WFPC2

13/1994 .jpg



NASA amazing discovery



8,797 VIEWS

22 LIKES, 13 DISLIKES



moh97gt

August 20, 2009



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Miracle Of Allah- Ruku Tree

outlandisc

5 years ago | 721,445 views



05:25



02:13



08:58



10:09 AM





Google Earth Proofs a Miracle of Prophet Muhammad ...



573,440 VIEWS

978 LIKES, 139 DISLIKES



AbdulSattar Minhajian



June 19, 2011

Google Earth Proofs a Miracle of Prophet Muhammad (S.A.W)

*** Join us on Facebook ***

1. Fan-page of Shaykh-ul-Islam Dr Muhammad Tahir-ul-Qadri

<https://www.facebook.com/TahirulQadri>

2. Fane-page of Minhaj-ul-Quran International

<https://www.facebook.com/MinhajulQuran>

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04:38

How Neil Armstrong Became a Muslim! Live-Star Productions, Inc.

nadeemprock

1 year ago | 326,300 views



While the rocket was going upon the earth, Neil hear strange noise!



04:03

The House of the Holy Prophet Muhammad pbuh-MAROOF PEER...
miracleofislam92

1 year ago | 1,189,142 views



10:00

Adam & Eve - 1 - آدم وحواء

adamwahawa

3 years ago | 247,105 views



00:25



01:04



00:58



How Neil Armstrong became a Muslim!



How Neil Armstrong Became a Muslim! Live-Star Prod...



326,300 VIEWS

754 LIKES, 297 DISLIKES



nadeemprock

August 31, 2011



How Neil Armstrong Became a Muslim! Live-Star Productions, Inc.
How Neil Armstrong Became a Muslim! Live-Star Productions, Inc.

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05:47

a Scientist explains why he become a muslim, interesting

Benkortbi

2 years ago | 220,221 views



02:51

SubhanaAllah (Amazing)

skafir

2 years ago | 484,863 views



09:45

Manusia Belum Pernah Mendarat Ke Bulan 1

eurismanful

2 years ago | 73,411 views



05:46



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00:25



10:11 AM





Apollo 11, the organizer
of the rocket and space
company



How Neil Armstrong Became a Muslim! Live-Star Prod...



326,300 VIEWS

754 LIKES, 297 DISLIKES



nadeemprock

August 31, 2011



How Neil Armstrong Became a Muslim! Live-Star Productions, Inc.
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eurismanful

2 years ago | 73,411 views



05:46



01:25



00:25



10:11 AM





Allah name on earth by NASA



498,962 VIEWS

935 LIKES, 128 DISLIKES



m5a5j

November 22, 2009



Allah name on earth by NASA
Allah name on earth by NASA

RELATED

COMMENTS



24:24

Christian Boy Exposed by Dr. Zakir Naik_Dubai International Peace...

Abubakar Bukhari

9 months ago | 160,664 views



06:21

Answer that shocked the Christian girl

foxdieelf

3 years ago | 1,497,408 views



01:54

Muhammad ALi and Will Smith on Islam

lilpain10

4 years ago | 1,106,632 views



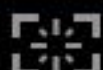
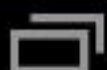
00:48



12:40



15:00



10:12 AM





Muslims and the World

NASA confirms that Muslims are Idiots

October 24, 2012 at 9:44 pm by Aisha Sabeer



Muslims believe that the Quran is a book of science, and that the Prophet Muhammad also revealed a number of scientific points. It is for this reason they are always quick to jump on the bandwagon for any scientific fact or claim that the West introduces. Unfortunately this eagerness can also lead to their ridicule, as they are also quick to provide help to spread the message for a number of false claims and outright lies, which they wrongly believe support the claim of Islam being the true religion.

Two of these scientific falsities involve the space agency NASA, with claims that NASA has confirmed a revelation related to Islam. The first is that NASA has confirmed that the moon has previously been split into two pieces, and the second is that NASA has confirmed that the sun will rise from the west. Both of these alleged reports by NASA are absolutely false. The stories are still being spread around in a number of slightly different versions of the main story.

In regards to the splitting of the moon, it is mentioned briefly in the Quran, along with more detailed stories being found in the hadiths. **The Hour (of Judgment) is nigh, and the moon is cleft asunder. But if they see a Sign, they turn away, and say, "This is (but) transient magic." (Quran 54:1-2)** The hadiths explain that the splitting of the moon was one of a number of miracles performed by God during the time of Muhammad, and its purpose was to help convince people that he was a prophet.

While the narrations for the moon splitting are considered authentic by almost all modern scholars, what they don't always agree on is the nature of the miracle. Some interpret the hadiths to refer to a physical split, while others claim it was only an optical illusion. In either case, the moon was seen to have been split by the public of that time.

Gathering evidence to prove that the moon has been split is extremely difficult. Just as Allah had the power to split the moon in half, he would also have the power to put it back together and remove all evidence of a split. In the case of an optical illusion, there would of course be no evidence at all.

There is no evidence to date to prove the moon split, and none has ever been released by NASA or any other organisation. This is one of the versions of the story being forwarded around, along with an accompanying photograph:

In one of Dr. Zaghlool Al-Najaar's seminars, in one of the British universities said: "The miracle of the splitting of the moon has been proven recently"... "One of the british brothers who is very concerned about the state of Islam "Dawood Musa" who is the new chairman of the British Muslims party said "While he was searching for a religion, a friend gave him a copy of the Quran translated in english. he opened it & came across surat Al-Qamar & read "The hour has come & the moon has split", looking at this he said 'The moon has split?! he then stopped reading & did not open it again.

Then one day while watching a program on the BBC, the broadcaster was talking with 3 American scientists, & the broadcaster was blaming America for spending billions of dollars on space projects, in a time where millions of people are suffering from poverty. The scientists were trying to explain why it is important to go into space exploration. Soon the scientists came to discuss the most expensive trip tp the moon, which costed about \$100 billion, so the broadcaster asked them "So to put the American flag on the moon you spent this much money?!"

The scientists stated that this much money was spent because they were trying to study the internal structure of the moon to see what similarities it has with the Earth, & they said that they were surprised to find a 'Belt of Rocks' that goes from the surface of the moon right to the inner depths.

Being quite surprised, they gave this information to their geologists, who were also surprised, as they concluded that this couldn't be unless the moon was once split & resealed. The rocks on the belt are a result of the impact during the time





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Being quite surprised, they gave this information to their geologists, who were also surprised, as they concluded that this couldn't be unless the moon was once split & resealed. The rocks on the belt are a result of the impact during the time that 2 halves of the moon recombined.

Watching this brother Dawood Mussa jumped off his seat screaming "This is Muhammad's miracle which occurred more than 1400 years ago, & now the Americans are spending billions of dollars to prove it to the Muslims. He then said "This must surely be a true religion, & so, where once Surat Al-Qamar was a cause for him disbelieving in Islam, it was now the reason for him embracing Islam...



NASA have responded to the hoax, and verified that it is false. They have stated that the photo was taken from the Apollo 10 mission to the moon, and that someone has added the quotation later. NASA confirmed the photo is of Rima Ariadaeus, which is a linear rille on the moon, and was first noticed through telescopes over 200 years ago. The rille is said to be several hundred kilometres long, and when compared to NASA's moon circumference measurement of 10,864 kilometres, it falls well short of stretching the whole distance. Other photographs taken from a further distance confirm its relatively short length.

The coming 2012 end times hysteria has led to the rise of the second hoax regaining popularity, as a new twist has emerging with apparent video footage of NASA saying the world will end near the end of the year. Fraudsters have decided to combine that with the old story of the NASA confirmation that the sun will rise from the west, which is said in Islam to denote the end times of the world.

Adding weight to the claim by NASA is that this story has actually been published in newspapers under the title of "NASA confirms possibility of sun rising from the West". Unfortunately this is probably just a case of the newspapers editor also being stupid enough to fall for it, but there may have been other reasons for its publication – such as to ridicule the writer, or to create disunity amongst Muslims. A copy of the publications and their transcriptions are below:

The science of astronomy states that the speed of planet Mars has been decreasing in its course toward the eastern direction in the past few weeks to the level we notice the "waver" between the east and the west and on Wednesday the 30th of July the planet movement stopped going toward the eastern direction.

Then in the months of August and September...Mars changed its course in the opposite direction to the West- and that until the end of September which means the sun will rise now from the west on Mars!! And this weird phenomena of the opposite movement is called "Retrograde Motion" Most scientist state that all the planets will go through the same once at least and our planet Earth is one of them. Planet Earth will move in the opposite direction some day and the sun will rise from the west!!

This might occur soon and we are unaware! The rise of the sun from the west is mentioned in the hadith and this is the major sign of the day of judgement, most if not all, the minor signs have occurred. Wake up. Our beloved messenger Mohamed (Peace Be Upon Him) said: "One of the signs of the hour the sun will rise from the west, where no longer tauba (forgiveness) will be granted"

!!And the strange thing most of our Shariah scholars mentioned that the rise of the sun from the west occurs only once on that day the sun will rise from the west then again from the east and continues until Allah wishes and this is similar to what is happening to Mars it stops, then it changes its course of direction for a short period of time then returns to way once it was.

And Abdullah Bin Amro (R.A.) said: (I memorised from the messenger (SAW) a hadith I will never forget I heard the messenger of Allah (SAW) say: The first aya to come the rise of the sun from the west) [Ahmad]. And the messenger SAW "Allah places HIS hand at night to forgive his morning sinners, and places in the morning to forgive his night sinners until the sun rises from the west" [Muslim].

This piece of news is very important as it brings with it a great sign of warning and remembrance of the coming of a new WORLD – the world of the Hereafter When we show this hadith that was told 1400 years ago about this miracle..you will see InshaALLAH, a lot will revert to right path...And the Muslims if they see this phenomena happening in Mars who knows maybe it would bring them closer to our CREATOR. May Allah keep all of us in the right path and provide us with





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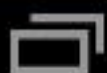
success in this world as well as in the hereafter



The poor English and unjournalistic style are just a couple of dead giveaways that the story is not authentic, and it has been suggested the newspaper has simply published some crazed bloggers rant. The Business Recorder is a Pakistani newspaper, and it has also been published in Indian Newspapers, and potentially other countries as well.

NASA has also decided to officially refute making this claim, and one might ask if both of these NASA stories are true, why don't people send the links to the stories on the official NASA website, instead of creating stories, images, and Youtube videos. Quite simply, this information is not on the NASA website, and has never been stated by them.

Muslims should always takes steps to verify the authenticity of stories they hear. There is nothing worse than someone who comes across information, refuses to check whether its true, and hits the repost or forward buttons on the computer. In fact this same advice has also been given by NASA, who have in their responses to these two stories, as well as countless others such as NASA confirms the end of the world is coming, NASA confirms we are under an alien attack, NASA confirms the discovery of UFOs, have stated "Do not believe everything you see on the internet". Quite frankly, if you have fallen for these stories, then the only confirmation that has been made is the fact that you are an idiot.

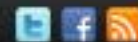




NASA di...



ers-miracle-kaba-infinite-radation-scientist-explains



Miracle Islam

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Miracle Islam Video LET THE TRUTH BE REVEALED

NASA discovers miracle of Kaba | Infinite Radation | Scientist explains

Submitted by admin on Fri, 08/24/2012 - 08:41

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86



10:15 AM





But if they (unbelievers) see a Sign, they turn away, and say, "This is (but) transient magic."



What does NASA say about Moon's ancient past, Moo...



43,137 VIEWS

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skakvac

October 21, 2010



What does NASA say about Moon's ancient past, Moon splitting in Quran

During Muhammad's lifetime splitting of the moon was a great miracle done by God to testify that Muhammed was real messenger of God. And the moon might split again as a sign of Day of Judgment. Those cliffs that you see on this video is probably caused by this great miracle, and we might see it again in the future when Day of Judgment is nigh.

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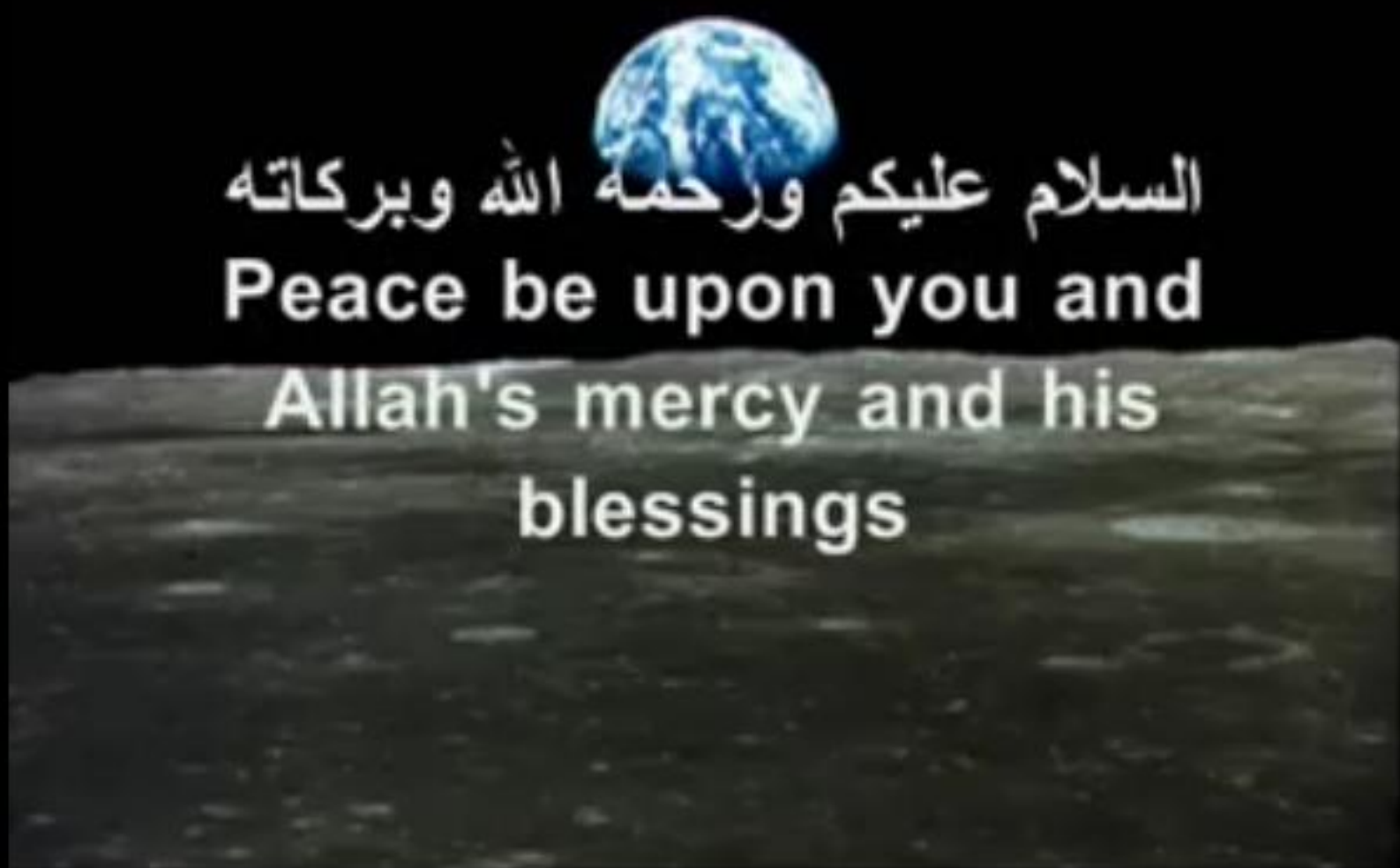


86



10:16 AM





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Crack on moon confirms Prophet Muhammad (S) had split it

By: Mohamed Ali

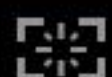
NEW YORK, United States: Recent scientific research has confirmed the miracle of Prophet Muhammad Al-Mostafa (peace be upon him and his holy progeny) regarding "moon splitting".

It has been proved through a picture captured by NASA which was published throughout the world.

The photo from NASA using Apollo 10 and Apollo 11 shows a clear indication (a line) that the Moon was split in past.

The report, spread on scientific foundations in different global parts, said that the picture which illustrates splitting of moon confirms that the moon was split into two halves during its geological age. The report said the scientists were unable to give any scientific explanation for happening of 'moon splitting' as any such splitting was never happened to any heavenly body prior to what happened to the moon. The geologists assert that it is impossible that such a line appears save the moon was split into two halves and then it was rejoined.

This miracle of the Prophet (peace be upon him and his holy progeny) is mentioned in the beginning of Sura Al-Qamar (the moon) about the split of the moon [54:1] 'The Hour has drawn near, and the moon has been



This miracle of the Prophet (peace be upon him and his holy progeny) is mentioned in the beginning of Sura Al-Qamar (the moon) about the split of the moon [54:1] 'The Hour has drawn near, and the moon has been cleft asunder (the people of Makkah requested Prophet Muhammad to show them a miracle, so he showed them the splitting of the moon)'.



The crew of Apollo 11: Commander Neil A. Armstrong, Command Module pilot Michael Collins, Lunar Module pilot Edwin E. Aldrin, Jr. May 1, 1969. (NASA photo ID S69-31739)

The miracle existed at that time for the people of Quraish when they challenged the prophet Muhammad (peace be upon him and his holy progeny) to show them a miracle, or a proof that he is the Messenger of Allah.

The challenge was to split the moon into two pieces when it is full.

As was related by Adbullah ibn Mas'ud, while they were in Mina one night, Prophet Muhammad (peace be upon him and his holy progeny) split the moon into two by a gesture of his index finger. The two parts had separated and receded so much apart from each other that to the on-lookers one part had appeared on one side of the mountain and the other on the other side of it. Then in an instant the two had rejoined. Then, the Prophet (peace be upon him and his holy progeny) turned to us and said: 'Be witnesses!'

The amazing and wonderful phenomenon of the splitting of the Moon when it was full was a manifest sign of the truth that the Resurrection, of which the Holy Prophet was giving them the news, could take place and



May 1, 1969. (NASA photo ID S69-31739)

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The amazing and wonderful phenomenon of the splitting of the Moon when it was full was a manifest sign of the truth that the Resurrection, of which the Holy Prophet was giving them the news, could take place and that it had approached near at hand.

This was a manifest proof of the truth that the system of the Universe was neither eternal nor immortal it could be disrupted. David Mosa Pidcook (leader on British Muslim Party) said: It was shown in BBC a program where there was a debate between three experts.

The discussion was about if the amount of money paid by NASA to send a human to land on the surface of the moon to study the inner structure of the moon was worth it or not?? The American government authorized a budget of \$100, 000, 000, 000 (one hundred thousand million dollar) for this project. One of the discoveries of that project was that there is a layer of material that splits the moon into two halves and the only explanation to this discovery that the moon was split at some times in its history and rejoined!!!

<http://youtube.com/watch?v=rHaigjw21n0&feature=related>



انشقاق القمر

انشقاق القمر حادثة مذكورة في القرآن وفي كتب الحديث يؤمن المسلمون أنها وقعت في عهد النبي محمد في مكة ، فانشق القمر نصفين بين جبل أبي قبيس . ويعتبرونها إحدى معجزات النبي. من الناحية العلمية، أكد موقع ناسا من خلال آخر جملة في جواب لأحد علماء ناسا أن القمر الحالي نتج من تصادم جسمين ولكنه ذكر في بداية جوابه أن القول بأن ذلك كان في بدايات تكوّن وتشكّل القمر مجرد نظرية إلا أنه لم يؤكد متى حدث ذلك التصادم بشكل قاطع. كما بين أنهم لا يملكون حالياً أية أدلة تدل على حدوث انشقاق للقمر في أي حقبة من الماضي.^[1] ^[2].

ذِكْرُ الحادثة

ذُكرت الحادثة في الكثير من المصادر الإسلامية

من القرآن

ذُكرت هذه الحادثة في سورة القمر (التي سميت باسم هذه القصة) الآيتين الأولى والثانية: ﴿اقْتَرَبَتِ السَّاعَةُ وَانشَقَّ الْقَمَرُ﴾«54:1» ﴿وَإِنْ يَرَوْا آيَةً يُعَرِّضُوا وَيَقُولُوا سِحْرٌ مُسْتَمِرٌّ﴾«2:54»

من الحديث النبوي

روي عن عبد الله بن مسعود في صحيح البخاري :

” انشق القمر ونحن مع النبي، فصار فرقتين، فقال لنا: (اشهدوا اشهدوا).^[3] “

روي عن عبد الله بن عباس في البداية والنهاية :

” اجتمع المشركون إلى رسول الله منهم الوليد بن المغيرة وأبو جهل بن هشام والعاص بن وائل والعاص بن هشام والأسودابن عيد يقوث والأسود بن المطلب وزمعة بن الأسود والنضر بن الحارث ونظراؤهم فقالوا للنبي إن كنت صادقا فشق لنا القمر فرقتين نصفاً على أبي قبيس ونصفاً على فعيقةان فقال لهم النبي إن فعلت تؤمنوا قالوا نعم وكانت ليلة بدر فسأل الله عز وجل أن يعطيه ما سألوا فأمسى القمر وقد سلب نصفاً على أبي قبيس ونصفاً على فعيقةان ورسول الله ينادي يا أبا سلمة بن عبد الأسد والأرقم بن الأرقم اشهدوا.^[4] “

وإذا كانت الناكرة الشعبية تعتبر مصدرا من المصادر التاريخية فإن أهل مالابار يذكرون أن ملكا من ملوكهم شاهد انشقاق القمر ورجل إلى مكة ليعتق الإسلام وفي السنة نجد حديثا يذكر ملك الهند هنا:

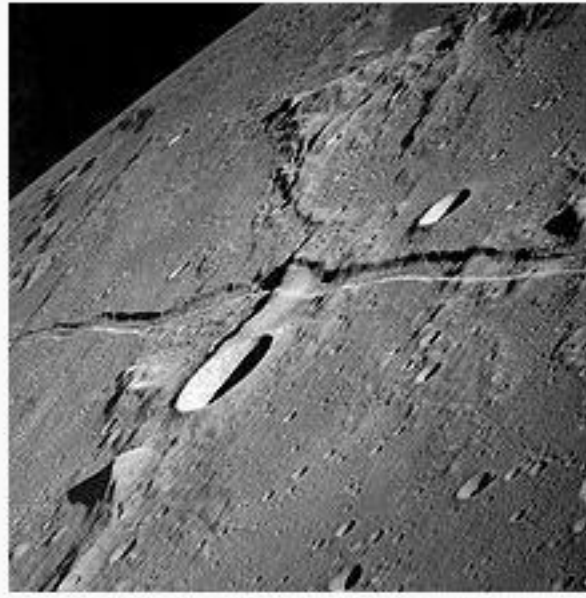
روي عن أبي سعيد الخدري في المستدرک :

” أهدى ملك الهند إلى رسول الله جرة فيها زنجيل فاطعم أصحابه قطعة قطعة وأطعمني منها قطعة.^[5] “

كما أن كتاب كيرالولباتي لمؤرخ ألماني ذكر إثنين من الملوك رحلوا إلى مكة في زمانين مختلفين^[6]، كما أن المراجع تذكر إسمين مختلفين شكرواتي فرما وشيرامان بيرومان، وأول مسجد بالهند يطلو عليه الاسم الثاني (مسجد شيرامان).

من العلم الحديث





خود قمر

اكتشف قبل 200 سنة ثلاثة أنواع من الشقوق على سطح القمر تختلف حسب شكلها النوع الأول من شكله عرف بأنه نتج عن تدفق الحمم على سطح القمر أما النوعين الآخرين فلم يحسم الباحثون الأسباب وراء حدوثهما [7] وبعض الباحثين المسلمين في **الإعجاز العلمي** يعتقدون أن هذه الشقوق بقيت بعد المعجزة لتؤكد صدق نبي الإسلام وأنها دليل واضح على أن القرآن نزل من عند الله لأنه يشير إلى شقوق في القمر قبل اختراع **التلسكوب** بمئات السنين كما أنهم لجأوا للاستشهاد بالصورة التي أطلقتها **ناسا** عن **الأخاديد القمرية**. الكثير من مواقع الويب تناولت مواضيع الإعجاز العلمي وأصبحت تتناول هذه الصور على أنها حقائق أكدتها ناسا بشأن انشقاق القمر على الرغم من أن ناسا أنكرت ذلك وبالمقابل انكر علماء الفضاء فضلاً عن ناسا وجود دليل علمي على حدوث انشقاق في القمر [8] يرى معظم المؤرخين الغربيين عدم مصداقية هذه المعجزة [9][10] كما ينكر علماء الفضاء وجود دليل علمي على حدوث انشقاق في القمر [11]

تفسيرات بديلة

صفحة مفصلة: **فرضية الاصطدام العملاق**

يرى بعض المفسرين والباحثين أن الانشقاق في القرآن يأتي بمعنى ابتعاد وانفصال الأشياء عن بعضها ولا يأتي بمعنى قسم الشيء الواحد إلى قسمين اثنين. وبسبب هذا التفسير **بنظرية** ان القمر والأرض قد ظهرا معا في وقت واحد ومن جسم واحد، وعندما انشق القمر عن الأرض، تحول إلى كتلة صلبة.

انتقادات



هذا المقال أو المقطع ينقصه الاستشهاد بمصادر. الرجاء تحسين المقال بوضع مصادر مناسبة. أي معلومات غير موثقة يمكن التشكيك بها وإزالتها. (سبتمبر 2011)



يعتمد نقاد هذا الاعتقاد على أمور منها:

- لم يذكر انشقاق القمر في أي مرجع تاريخي سوى الإسلامي منها. ^[**بحاجة لمصدر**] فمما لا شك فيه أن ظاهرة على هذا المستوى الكوني كانت ستلاحظ من كل الشعوب المتحضرة في ذلك الزمن. وعلى سبيل المثال، فإن ظاهرة ارتطام النيازك بالأرض في منطقة معينة، تعيش ذكراها في الكتب الرسمية والحكايات الشعبية لشعوب تلك المنطقة. ومن الأمثلة على ذلك كسوف الشمس الذي وقع في حياة نبي الإسلام محمد بن عبد الله. فالرغم من ضآلة هذا الحدث مقارنة بحدوث انشقاق القمر، فإنه مذكور بشكل تفصيلي في الكثير من الأحاديث. وبعد أول من وجه هذا النوع من الانتقادات المعتزلة. ^[**بحاجة لمصدر**]
- الشقوق الموجودة في القمر لا تدور حول القمر كله كما من المفروض ان يحدث عند انشقاق اي جسم كروي، بل انها تغطي فقط 2% من محيط القمر. ^[**12**]
- من أجل ظهور شق في القمر على الأرض يجب أن يبتعد جزءا القمر مسافة كبيرة جداً، ومن ثم الالتحام. لا توجد أي أدلة على القوة العملاقة التي قامت بذلك (جبال، وديان، أماكن غير متناسقة) لتدل على مكان الانشقاق أو الالتحام. ^[**بحاجة لمصدر**]
- لم يذكر القرآن معجزة انشقاق القمر بشكل واضح وصريح كما ذكر معجزات أخرى أقل شأنًا منها مثل الاسراء والمعراج أو انشقاق البحر لنبى إسرائيل أو انزال المائدة من السماء على النبي عيسى وقومه ولم يندد بالكفار الذين كذبوا بهذه المعجزة ولم يتوعددهم بالعذاب الأليم بل إن الآية المذكورة لا تشير إلى حدوث أية معجزة "افتريت الساعة وانشق القمر". ^[**بحاجة لمصدر**]
- يتحدث هنا الرابط عن علاقة الغلاف الجوي بالصخور، ومنه اشير إلى ان مثل هذا الانشقاق لا يمكن ان يحدث طبيعياً من دون غلاف جوي وماء والجميع يعلم ان القمر ليس له غلاف جوي "atmosphere" مطلقاً وكذلك لا يوجد ماء، مما يجعل عملية الانشقاق مستحيلة. ^[**بحاجة لمصدر**]
- حدث شق من هذه الشقوق تكون من 100 مليون عام. ^[**بحاجة لمصدر**]
- الأحاديث المروية لا تبلغ حد التواتر ويبدو أن الصحابي الوحيد الذي روى الحادثة هو **عبد الله بن مسعود** أما **أس بن مالك** و**عبد الله بن عباس** فلم يكونا قد ولما بعد عند حدوث انشقاق القمر. ^[**بحاجة لمصدر**]
- من غير المعروف إن كان أحد من الصحابة قد رأى معجزة انشقاق القمر والروايات لا تشير إلى ذلك. ^[**بحاجة لمصدر**]

يرى معظم المؤرخين الغربيين عدم مصداقية هذه المعجزة محتجين إنكار القرآن نفسه بحدوث معجزات [9][10] كما ينكر علماء الفضاء وجود دليل علمي على حدوث انشقاق في القمر [11]

The **splitting of the moon** (*Arabic*: انشقاق القمر) was a miracle attributed to the prophet **Muhammad**,^[1] derived from the **Qur'anic verse 54:1-2** [↗](#), and mentioned by **Muslim** traditions such as the **Asbab al-nuzul** (context of revelation). Some Muslim commentators interpret the event as a literal split in the moon, while others identify it as an optical illusion. Some assert that the verse refers to something that will happen at the day of judgement, not to a miracle performed by the prophet.

Early traditions supporting a literal interpretation are transmitted on the authority of companions of Muhammad such as **Ibn Abbas**, **Anas bin Malik**, **Abdullah bin Masud** and others.^{[2][3]} According to the Indian Muslim scholar **Abdullah Yusuf Ali**, the moon will split again when the day of judgment approaches. He says that the verse may also have an **allegorical** meaning, i.e. the matter has become clear as the moon.^{[4][5]} The Qur'anic verse **54:1-2** [↗](#) was part of the debate between medieval Muslim theologians and Muslim philosophers over the issue of the inviolability of heavenly bodies. Philosophers held that the heavenly bodies could not be pierced because unlike the terrestrial matter, they were not composed of the four fundamental elements of earth, air, fire, and water.^[5] Some other rationalistic Muslim thinkers had difficulties accepting any preternatural event, and sometimes argued that only an appearance of the split of the moon had happened.^[4]

The narrative was used by some later Muslims to convince others of the prophethood of Muhammad.^[4] It has also inspired many Muslim poets, especially in India.^[6]

The Qur'an and Islamic tradition

Part of a series on
Qur'an

Text
Chapter (Sura) (List of chapters · Meccan · Medinan) · Verse · Juz · Muqatta'at ·
Content
God · Eschatology · Prophets in the Quran · Quran and miracles · Quran and science · Legends · Female figures · Parables in the Quran ·
Quran reading
Tajwid · Tarteel · Hafiz · Reciter · Variant readings ·
Translation
List of translations · English translations ·
History
History of the Quran (Samarkand Kufic Quran · Sana'a manuscript · Topkapi manuscript) ·
Qur'anic exegesis
Persons related to verses (mentioned by name) · Occasions of revelation · Abrogation · Biblical narratives · Esoteric interpretation · Qur'anic hermeneutics ·
Related
Inimitability · Qur'an and tradition · Qur'anism · Shi'a · Createdness · Criticism ·
V · T · E ·

Verse **54:1-2** [↗](#) of the **Qur'an** reads:

“

اقْتَرَبَتِ السَّاعَةُ وَانْشَقَّ الْقَمَرُ ۚ وَإِن يَرَوْا آيَةً يُعَرِّضُوا وَيَقُولُوا سِحْرٌ مُّسْتَمِرٌّ

Verse 54:1-2 of the Qur'an reads:

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*The hour drew nigh and the moon did rend asunder. And if they see a miracle they turn aside and say:
Transient magic.*

”

Early traditions and stories explain this verse as a miracle performed by God during the life of Muhammad in order to convince [Quraysh](#) of his prophethood.^{[7][8]} Virtually all Muslim commentators accept the authenticity of those traditions. The following verse 54:2, "But if they see a Sign, they turn away, and say, 'This is (but) transient magic'" is taken in the support of this view.^[8] The classical commentator [Ibn Kathir](#) provides a list of the early traditions mentioning the incident: A tradition transmitted on the authority of [Anas bin Malik](#) states that Muhammad split the moon after the pagan Meccans asked for a miracle. Another tradition from Malik transmitted through other chains of narrations, mentions that the [mount Nur](#) was visible between the two parts of the moon (Mount Nur is located in [Hijaz](#). Muslims believe that Muhammad received his first revelations from God in a cave on this mountain, [Cave Hira'](#)). A tradition narrated on the authority of [Jubayr ibn Mut'im](#) with a single chain of transmission says that the two parts of the moon stood on two mountains. This tradition further states that the Meccan responded by saying "Muhammad has taken us by his magic...If he was able to take us by magic, he will not be able to do so with all people." Traditions transmitted on the authority of [Ibn Abbas](#) briefly mention the incident and do not provide much details.^[2] Traditions transmitted on the authority of [Abdullah bin Masud](#) describe the incident as follows:^{[2][9]}

“

We were along with God's Messenger at Mina, that moon was split up into two. One of its parts was behind the mountain and the other one was on this side of the mountain. God's Messenger said to us: Bear witness to this [039:6725](#)

”

[Al-Zamakhshari](#), a famous commentator of the Qur'an, acknowledged the splitting of the moon as one of Muhammad's miracles. But he also suggested that the splitting might take place only on the [day of judgment](#).^[5] The Muslim scholar [Yusuf Ali](#) provides three different interpretations of the verse. He holds that perhaps all three are applicable to the verse: Moon once appeared cleft asunder at the time of Muhammad in order to convince the unbelievers. It will split again when the day of judgment approaches (here the prophetic past tense is taken to indicate the future). Yusuf Ali connects this incident with the disruption of the solar system mentioned in [75:8-9](#). Lastly, he says that the verses can be metaphorical, meaning that the matter has become clear as the moon.^[10]

Dissenting commentators who do not accept the miracle narration such as [Hasan al-Basri](#) (d. 110 H.) and 'Ata al-Khurasani (d. 135 H.) believe that the verse only refers to the splitting of the moon at the [day of judgment](#).^{[4][8][11]} Likewise, [M. A. S. Abdel Haleem](#) writes:

“

The Arabic uses the past tense, as if that Day were already here, to help the reader/listener imagine how it will be. Some traditional commentators hold the view that this describes an actual event at the time of the Prophet, but it clearly refers to the end of the world.^[12]

”

Some Muslim scholars postulate and believe that a (now known) Astronomical event must have happened at that time, which made it appear to the observers as if the moon had been split in two, because the phenomenon was seen at least in India as well.^[13] One of the possible lunar events could be a large asteroid hitting the moon, and the plume and debri from the strike blocking enough lunar view to make it appear as if the Moon had split in two. A second possibility could be a celestial body passing between Earth and the Moon and blocking some part of lunar surface for short time. Moreover, in the light of the verse that was revealed at that time, the word "Saa'at" also means spiritual revolution, so the

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In later Islam



The narrative was used by some later Muslims to convince others of the prophethood of Muhammad. [Annemarie Schimmel](#) for example quotes the following from Muslim scholar [Qadi Iyad](#) who lived in [Ceuta](#) in [Spain](#):^[4]

“

It has not been said of any people on the earth that the moon was observed that night such that it could be stated that it was *not* split. Even if this had been reported from many different places, so that one would have to exclude the possibility that all agreed upon a lie, yet, we would not accept this as proof to the contrary, for the moon is not seen in the same way by different people.... An eclipse is visible in one country but not in the other one; in one place it is total, in the other one only partial.

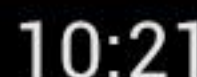
”

Western historians such as A.J. Wensinck and Denis Gril, reject the historicity of the miracle arguing that the Qur'an itself denies miracles, in their traditional sense, in connection with Muhammad.^{[6][14]}

Debate over the inviolability of heavenly bodies



The Qur'anic verse [54:1-2](#) was part of the debate between medieval Muslim theologians and Muslims philosophers over the issue of the inviolability of heavenly bodies. The philosophers held that nature was composed of four fundamental elements: earth, air, fire, and water. Philosophers however held that the composition of heavenly bodies were different. This belief was based on the observation that the motion of heavenly bodies, unlike that of terrestrial bodies, was circular and without any beginnings or ends. This appearance of eternity in the heavenly bodies, led the philosophers to conclude that the heavens were inviolable. Theologians on the other hand proposed their own conception of the terrestrial matter: the nature was composed of uniform atoms that were re-created at every instant by God (the latter idea was added to defend God's omnipotence against the encroachment of the independent secondary causes). According to this conception, the heavenly bodies were essentially the same as the terrestrial bodies, and thus could be pierced.^[5]



i-St@r Space Mission

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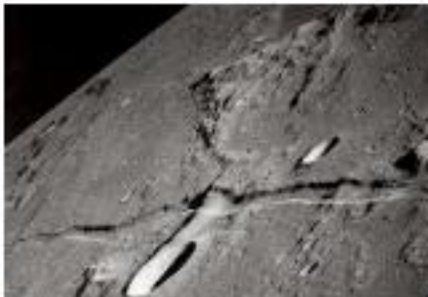
History behind Splitting of Moon and recent discovery by NASA

Posted On : 11:15 AM Posted by : Jaseem [Comments \(0\)](#)

Muslims believes that Allah split the moon as two parts and rejoined it, as a sign of God's power. The people of Makkah requested Prophet Muhammad to show them a miracle, so he showed them the splitting of the moon. This miracle of the Prophet is mentioned in the beginning of Sura Al-Qamar (the moon).



Proof for the Splitting of Moon



Recent scientific research has confirmed the miracle of Prophet Muhammad regarding "moon splitting". It has been proved through a picture captured by NASA which was published throughout the world. The picture which illustrates splitting of moon confirms that the moon was split into two halves during its geological age.

Updates from NASA

The images from NASA, using Apollo 10 and Apollo 11 shows a clear indication (a line though the moon) that the Moon was split in past. The report said the scientists were unable to give any scientific explanation for happening of 'moon splitting' as any such splitting was never happened to any heavenly body prior to what happened to the moon. The geologists assert that it is impossible that such a line appears save the moon was split into two halves and then it was rejoined.



Cost of this Project

American government authorized a budget of \$100, 000, 000, 000 (one hundred thousand million dollar) for this project. One of the discoveries of that project was that there is a layer of material that splits the moon into two halves and the only explanation to this discovery that the moon was split at some times in its history and rejoined!!!



Categories

- Moon crack (1)
- Moon splitting (1)
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i-St@r Space Mission

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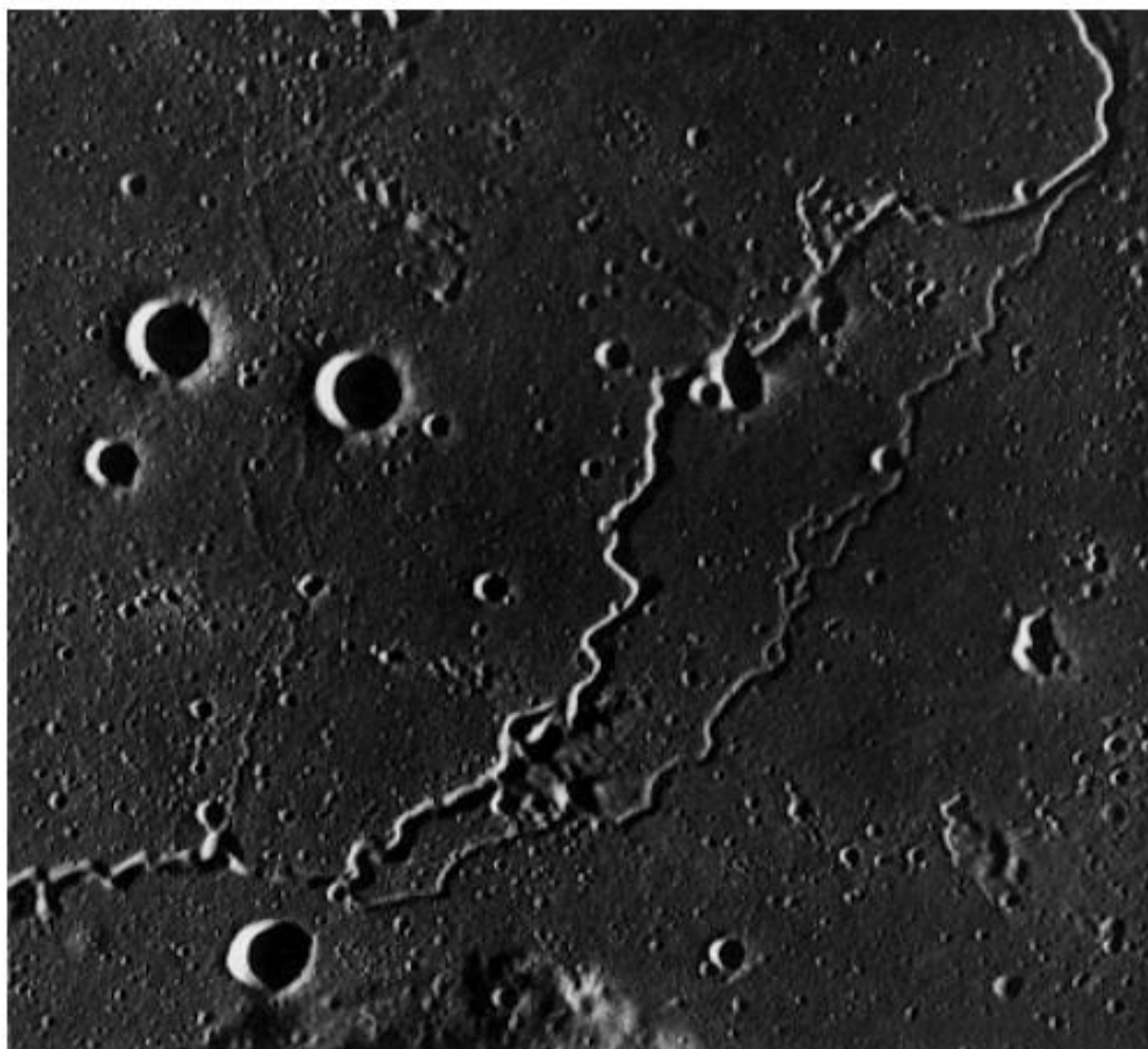
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NASA Scientists Latest Discovery: Moon is Battered and Cracked Under Surface

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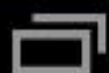


NASA Scientists Latest Discovery: Moon is Battered and Cracked Under Surface

NASA scientists stated the moon's surface has been receiving massive impacts from numerous asteroids and comets.

Latest information obtained from the Gravity Recovery and Interior Laboratory (GRAIL) mission reveal the nearly crushed lunar interior just below the surface. In conclusion, planet Earth as well as other terrestrial planets in the Solar System may have also endured the attacks of space rocks.

Data gathered came from NASA's twin spacecraft Ebb and Flow which used the gravity mapping method. It began orbiting around the moon earlier this year. The scientific discovery was presented at the American



10:24 AM



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"It was known that planets were battered by impacts but nobody had envisioned that the Moon's crust was so beaten up. This is a really big surprise and is going to cause a lot of people to think about what this means for planetary evolution," Maria Zuber, Principal Investigator for the GRAIL mission, declared.

GRAIL's gathered data and recent studies suggest that the space rocks attack may have started much longer than initially estimated. Different blasts possibly equaled the materials that created some of the largest craters on the Moon.

"If you look at surface of the Moon and how heavily cratered it is, that tells us that all terrestrial planets looked that way. But Earth's history is not preserved because of atmospheric and erosional processes on our planet. So, if we want to study those early periods, we need to go somewhere else and the Moon is the perfect place for that," Zuber stated.

In addition to the successful GRAIL discoveries, Zuber noted that the major accomplishment was done with the excellent performance of NASA's twin spacecrafts. Ebb and Flow is the first NASA spacecraft committed to this quest in space.

The washing machine-sized spacecrafts flew in a pattern orbiting around 56km above the moon's surface as they gathered data for the GRAIL mission. Their locations allowed them to examine deeper into the moon. The mission is scheduled to end later this month.

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Summary of question

What is the scientific reasoning behind the splitting of the moon?

question

What is the scientific reasoning that is used today for proving the splitting of the moon? What have space probes discovered regarding the moon and what has been said regarding this matter?

Concise answer

Considering the research and discoveries of space scientists, the answer to your question isn't very hard, because discoveries today tell us that not only isn't such a phenomenon possible, but it also actually has taken place various times regarding celestial bodies other than the moon.

NASA has confirmed the splitting of the moon and its coming back together again. The official website of *Al-Watan*, printed in the US, has quoted a Jordanian space scientist saying that The Clementine, an American space probe orbiting the moon for some years now has reached the conclusion that the moon was split and came together again hundreds of years ago. This scientist has presented a report to NASA explaining to them how the Muslims believe that this phenomenon belongs to 1400 hundred years ago and that it is a miracle of their prophet (pbuh). NASA is yet to discover the cause for it, because it is a unique incident that doesn't happen often.

Detailed Answer

In order to answer this question precisely, a few points need to be pointed out:

1- The splitting of the moon is one of the great miracles of Prophet Muhammad (pbuh). In surah Inshiqaq, Allah (swt) speaks of this magnanimous incident in such a manner: "اَلْقَمَرِ الشَّقِيقِ" [1]. In this verse, two important incidents have been mentioned; one being the nearness of the Day of Judgment which is the greatest change the universe is to undergo, and the other being the significant miracle of splitting the moon which is both a manifestation of Allah's (swt) never-ending power and proof of Prophet Muhammad's (pbuh) prophethood.[2] There is more than enough evidence that proves this was a miracle, namely: This matter has been mentioned in the Quran using a past tense verb, showing that the splitting of the moon has taken place, the same way the Day of Judgment has neared as a result of the coming of the final prophet (pbuh).

Add to that the many hadiths in Islamic references that narrate this incident as a miracle of the prophet (pbuh). These hadiths are so high in number to the extent that they leave no doubt that the splitting of the moon was truly a miracle of the prophet (pbuh).

What is more interesting is the reason why this miracle took place. The disbelievers said that magic and sorcery only have an effect on the earth, so in order to be sure of the prophet (pbuh) being truthful in his claim and that his miracles aren't plain magic, they proposed that he split the moon.

[3]

2- The splitting of the moon and contemporary science

First off, not only isn't the splitting and breaking of celestial bodies





◀ Moon Was Split:NASA

Thread: [Moon Was Split:NASA](#)

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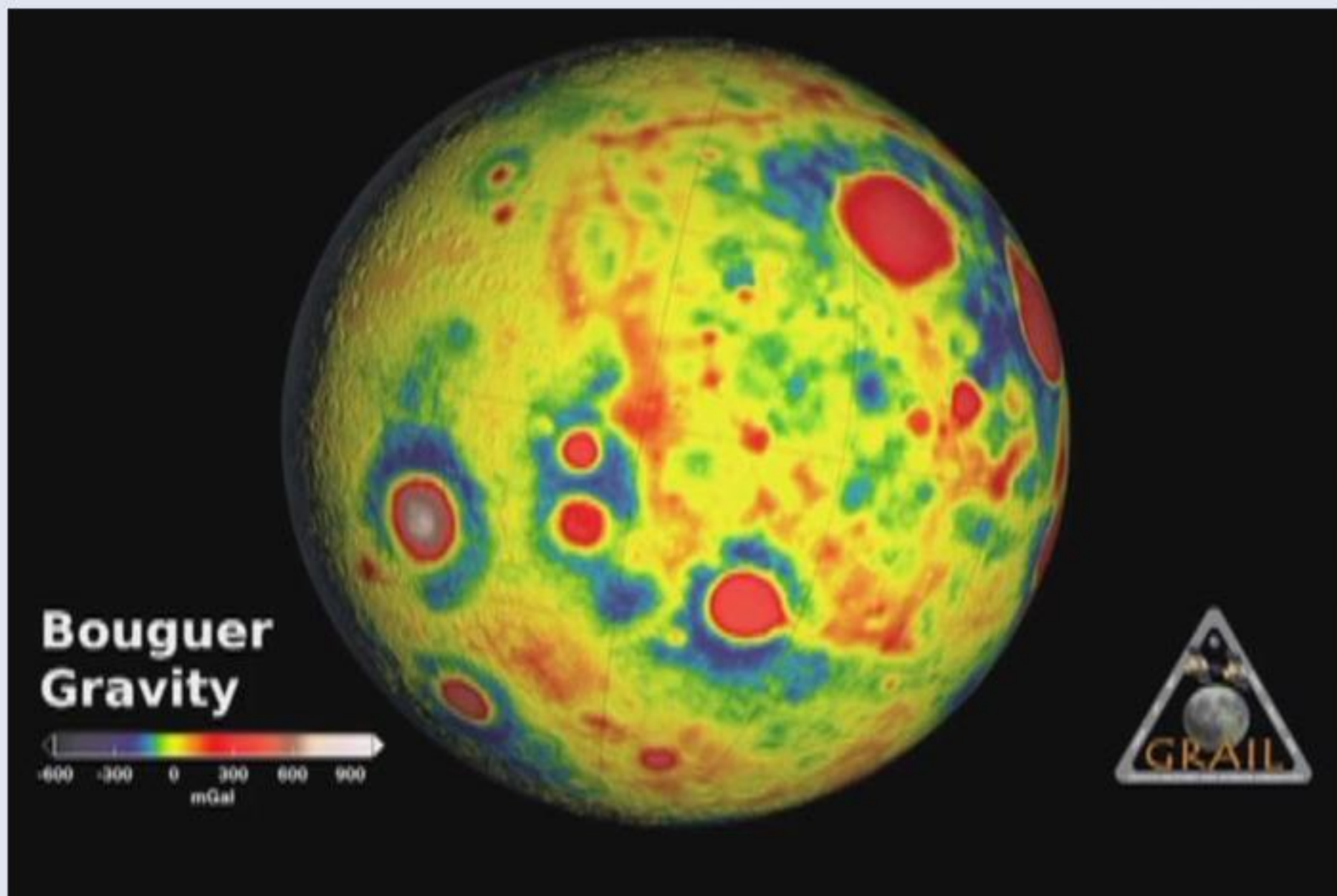
falah said:

07-Dec-2012 05:15 AM

📄 Moon Was Split:NASA

Narrated Abdullah ibn Masood: During the lifetime of the Prophet ﷺ the moon was split into two parts and on that the Prophet said, "Bear witness (to thus)."
[Bukhari]

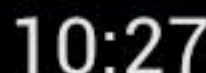
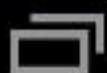
Moon's fractured crust may crack Mars mystery



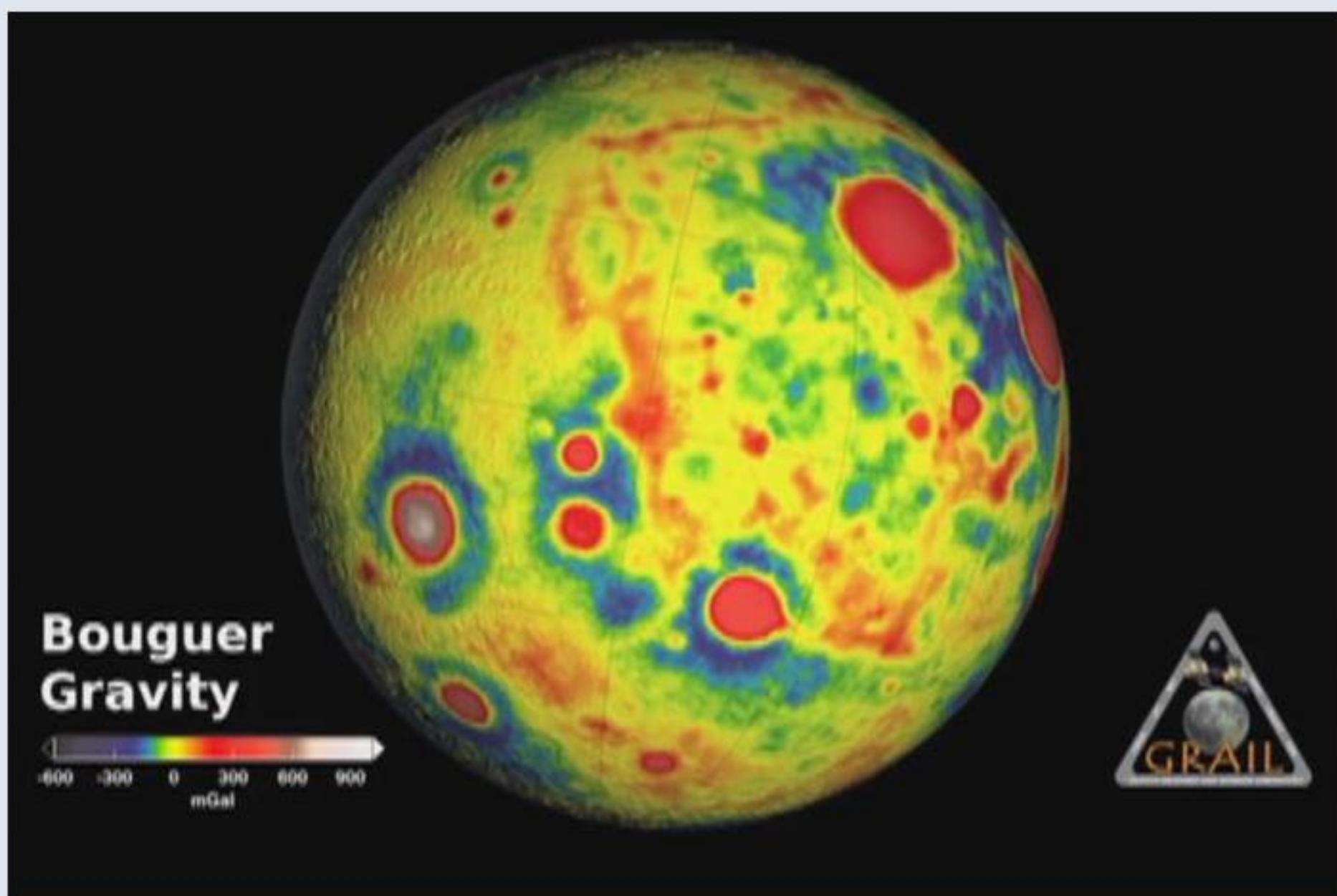
The colours represent differences in the gravity of the moon caused by variations in crustal thickness or density.

Asteroids and comets that have collided with the Moon not only pitted its surface but also severely fractured its crust, according to NASA researchers...

...The discovery that the Moon's crust is deeply fractured came from a pair of small probes that comprise



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...The discovery that the Moon's crust is deeply fractured came from a pair of small probes that comprise NASA's Gravity Recovery and Interior Laboratory, or GRAIL, mission.

The identical spacecraft have been following each other around the Moon for nearly a year.

Scientists have been monitoring the distance between the two, which changes slightly as they fly over denser regions of the moon...

...The gravitational pull of the additional lunar mass causes first the leading probe and then the other one to speed up, altering the gap between them.

The data, assembled into the first detailed gravity maps of the moon, reveal that asteroids and comets cratered the surface and fractured the crust, possibly all the way down to the mantle...

...The research is published in this week's Science journal...

<http://www.abc.net.au/news/2012-12-0...-crust/4413366>

Singapore: oppresses Muslims, bans athaan, bans hijab in schools, prevents building of madrassahs or muslim schools, puts limit on the percentage of Muslims allowed in each apartment building, and bans Muslims from joining Singapore's elite military forces. Singapore; Israel's best buddy!



Neil Armstrong (Conversion to Islam)



Neil Alden Armstrong (August 5, 1930 – August 25, 2012) was an [American](#) aviator and a former astronaut, test pilot, aerospace engineer, university professor, and United States Naval Aviator. He was the first person ever to set foot on the [Moon](#).^[1]

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Muslim Claim

[\[edit\]](#)

Neil Armstrong is said to have [converted](#) to [Islam](#) upon hearing the Adhan (call to [prayer](#)) on the moon. A typical version of the story follows:

When Neil Armstrong and co. walked on the moon, they heard sounds in a strange language they did not understand. 'When Neil Armstrong went to Egypt, he heard the adhan, and said, "it was spacey something similar I heard while I was on the moon". Egyptian Friend told him that, it was the sound of Azaan (call for Muslim prayer). And Neil Armstrong immediately became Muslim because of this experience.

Analysis

[\[edit\]](#)

Early Evidence

[\[edit\]](#)

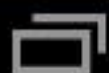
Transcript and Audio of Moon Landing

[\[edit\]](#)

The claim states that the Apollo 11 crew members heard "sounds in a strange language they did not understand", and that it was only later in [Egypt](#) that Armstrong learned it was the Muslim call to prayer. However, on NASA's official website, [nasa.gov](#), they provide the audio and the transcript of the initial 1969 moon landing, and there is no mention of any of the crew members hearing these unfamiliar sounds.^[2]

Additionally, before Armstrong and fellow astronaut Edwin Eugene "Buzz" Aldrin, Jr. stepped out of the lunar module, the Apollo 11 crew members observed a moment of silence whilst Aldrin read from the [New Testament](#) and administered Communion to himself. The Christian ceremony is described in an article by Aldrin in a 1970 copy of Guideposts magazine:

I poured the wine into the chalice our church had given me. In the one-sixth gravity of the moon the wine curled slowly





Muslim Claim

[edit]

Neil Armstrong is said to have [converted](#) to [Islam](#) upon hearing the Adhan (call to [prayer](#)) on the moon. A typical version of the story follows:

When Neil Armstrong and co. walked on the moon, they heard sounds in a strange language they did not understand. 'When Neil Armstrong went to Egypt, he heard the adhan, and said, "it was spacey something similar I heard while I was on the moon". Egyptian Friend told him that, it was the sound of Azaan (call for Muslim prayer). And Neil Armstrong immediately became Muslim because of this experience.

Analysis

[edit]

Early Evidence

[edit]

Transcript and Audio of Moon Landing

[edit]

The claim states that the Apollo 11 crew members heard "sounds in a strange language they did not understand", and that it was only later in [Egypt](#) that Armstrong learned it was the Muslim call to prayer. However, on NASA's official website, [nasa.gov](#), they provide the audio and the transcript of the initial 1969 moon landing, and there is no mention of any of the crew members hearing these unfamiliar sounds.^[2]

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I poured the wine into the chalice our church had given me. In the one-sixth gravity of the moon the wine curled slowly and gracefully up the side of the cup. It was interesting to think that the very first liquid ever poured on the moon, and the first food eaten there, were communion elements.^[3]

Letter from Armstrong's Administrative Aide

[edit]

In 1983, Vivian White, the administrative aide of Armstrong [refuted](#) the allegations in a letter to Phil Parshall, Director Asian Research Center International Christian Fellowship.

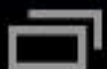
NEIL A. ARMSTRONG
LEBANON, OHIO 45036
July 14,1983
Mr. Phil Parshall Director Asian Research Center International Christian Fellowship 29524 Bobrich Livonia, Michigan 48152
Dear Mr. Parshall:
Mr. Armstrong has asked me to reply to your letter and to thank you for the courtesy of your inquiry.
The reports of his conversion to Islam and of hearing the voice of Adzan on the moon and elsewhere are all untrue. Several publications in Malaysia, Indonesia and other countries have published these reports without verification. We apologize for any inconvenience that this incompetent journalism may have caused you.
Subsequently, Mr. Armstrong agreed to participate in a telephone interview, reiterating his reaction to these stories. I am enclosing copies of the United States State Department's communications prior to and after that interview.
Sincerely
Vivian White
Administrative Aide
Letter by Vivian White, Administrative Aide for Neil Armstrong; July 14,1983

Letter from State Department

[edit]

A letter from the US State Department rejecting the claim was also attached to the letter from Armstrong's administrative aide.

P 04085 0Z MAR 83 ZEX
FM SECSTATE WASHDC TO ALL DIPLOMATIC AND CONSULAR POSTS PRIORITY BI UNCLAS STATE 056309
FOLLOWING REPEAT SENT ACTION ALL EAST ASIAN AND PACIFIC DIPLOMATIC POSTS DTD MAR 02.
QUOTE: UNCLAS STATE 056309 E.O. 12356: N/A TAGS: PREL PGOV US ID SUBJECT: ALLEGED CONVERSION OF





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QUOTE: UNCLAS STATE 056309 E.O. 12356: N/A TAGS: PREL, PGOV, US, ID SUBJECT: ALLEGED CONVERSION OF NEIL ARMSTRONG TO ISLAM

REF: JAKARTA 3281 AND 2374 (NOT ..)

1. FORMER ASTRONAUT NEIL ARMSTRONG, NOW IN PRIVATE BUSINESS, HAS BEEN THE SUBJECT OF PRESS REPORTS IN EGYPT, MALAYSIA AND INDONESIA (AND PERHAPS ELSEWHERE) ALLEGING HIS CONVERSION TO ISLAM DURING HIS LANDING ON THE MOON IN 1969. AS A RESULT OF SUCH REPORTS, ARMSTRONG HAS RECEIVED COMMUNICATIONS FROM INDIVIDUALS AND RELIGIOUS ORGANIZATIONS, AND A FEELER FROM AT LEAST ONE GOVERNMENT, ABOUT HIS POSSIBLE PARTICIPATION IN ISLAMIC ACTIVITIES.
2. WHILE STRESSING HIS STRONG DESIRE NOT TO OFFEND ANYONE OR SHOW DISRESPECT FOR ANY RELIGION, ARMSTRONG HAS ADVISED DEPARTMENT THAT REPORTS OF HIS CONVERSION TO ISLAM ARE INACCURATE.
3. IF POST RECEIVE QUERIES ON THIS MATTER, ARMSTRONG REQUESTS THAT THEY POLITELY BUT FIRMLY INFORM QUERYING PARTY THAT HE HAS NOT CONVERTED TO ISLAM AND HAS NO CURRENT PLANS OR DESIRE TO TRAVEL OVERSEAS TO PARTICIPATE IN ISLAMIC RELIGIOUS ACTIVITIES.^[4]

Letter in the Journal Arabia

[\[edit\]](#)

In June 1985, the following letter to the editor was printed in the journal Arabia: The Islamic World Review.

A MUSLIM OVER THE MOON?

Arabia is by far the superior newsmagazine regarding what is going on in the Muslim world today. Your reporting is extremely thorough and seeks to be as objective as possible. Your willingness to criticise political policies as well as religious happenings in the Muslim world is refreshing. As an American I would feel your slant on the West is basically fair. It would be most helpful if you would dispel a misconception prevalent in almost all Muslim countries. From Morocco to the Philippines it is commonly believed that Neil Armstrong heard the Azan on the moon, converted to Islam and is now engaged in the full-time propagation of the Muslim faith.

The US State Department has issued a memo saying that the story about Armstrong's conversion was untrue. The memo said "While stressing his strong desire not to offend anyone or show disrespect for any religion, Armstrong has advised department that reports of his conversion to Islam are inaccurate." The memo further says, "if post receives queries on this matter, Armstrong requests that they politely but firmly inform querying party that he has not converted to Islam and has no current plans or desires to travel overseas to participate in Islamic religious activities."

N.B. The memo was sent to all our diplomatic and consular posts.

Dr Phil Parshall

Director, Asian Research Centre Manila, Philippines^[5]

Later Evidence

[\[edit\]](#)

Armstrong's Own Words

[\[edit\]](#)

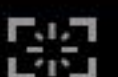
Official 2005 Biography

[\[edit\]](#)

In Armstrong's official 2005 biography, *First Man: The Life of Neil A. Armstrong*, he states in his own words that the conversion rumors are false.

I have found that many organizations claim me as a member, for which I am not a member, and a lot of different families — Armstrong families and others — make connections, many of which don't exist. So many people identify with the success of Apollo. The claim about my becoming a Muslim is just an extreme version of people inevitably telling me they know somebody whom I might know.^[6]

Global Leadership Forum Q&A Session

[\[edit\]](#)

10:32 AM





Later Evidence

[\[edit\]](#)

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[\[edit\]](#)

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Global Leadership Forum Q&A Session

[\[edit\]](#)

During the Q&A session at the Global Leadership Forum held in Kuala Lumpur, [Malaysia](#), he again denied converting to Islam or hearing the Muslim call to prayer on the moon.

"The only thing that might be more difficult than the Apollo programme was trying to fake it," he said during a question-and-answer session at the Global Leadership Forum here yesterday.

Asked by Malaysian astronaut candidate Zaid Zahari, 32, which he considered to be his greatest achievement — landing on the moon or getting back to Earth safely — Armstrong said it was a "superior moment" when he set foot on the moon.

...

Armstrong, 75, also denied he had heard the Muslim call to prayer on the moon and had converted to Islam.^[7]

Fatwa Ruling the Conversion as Fabricated

[\[edit\]](#)

A later [fatwa](#) from Shaykh Muhammed Salih Al-Munajjid's Islam Q&A also rules these rumors as [lies](#).

The story about Neil Armstrong, who they say was the first man to step onto the surface of the moon, becoming a Muslim is one of the stories that are passed around among people. We have researched this story and we did not find any reliable source for it.

We have got used to hearing stories like that which then turn out to false, and it seems that this is a deliberate attempt to shake the faith of the ordinary Muslims, especially since they fabricated this story with some exciting details, that seem to affirm the superiority of this religion over all other religions. So they spread the news that famous people, such as artists, sportsmen and others have become Muslim, and they quote something with the story that affirms the truth of the Messenger and his message, then after a while they hasten to disprove these stories. Perhaps the story about Armstrong becoming a Muslim is of this type, because he is one of the most famous people in the world. Moreover the reason why he supposedly became Muslim — as they say — is that he heard the adhaan (call to prayer) on the Moon then he heard it again in Egypt.

If the story of such a famous person becoming Muslim was really true, you would see him calling people to Islam and you would see the scholars and daa'iyahs and the Islamic media meeting him and talking to him, none of which happened in this case. If you compare the story of Armstrong supposedly becoming Muslim with the story of Yusuf Islam (the former Cat Stevens, the famous British singer), you will see the difference between lies and truth, imagination and reality.

[Is the story that the astronaut Neil Armstrong became Muslim true?](#)

Islam Q&A, Fatwa No. 20880

Conclusion

[\[edit\]](#)

There is no evidence whatsoever to support the claim that Neil Armstrong converted to Islam, or that he and the other Apollo 11 crew members witnessed anything miraculous while on the moon. Conversely, there is copious amounts of evidence that directly or indirectly prove the entire claim to be a [hoax](#). The evidence against this claim is so strong that there has even been a fatwa issued confirming it as fabricated.

Armstrong himself, in his autobiography, denied ever converting to Islam. His administrative aide and the US State Department also denied any truth behind the conversion rumors. He would later, in Malaysia, explicitly deny that there was any truth behind the claim that he also heard the Muslim call to prayer on the moon, and the transcript and audio of the moon landing itself contradict the claim that "strange" sounds or words were ever heard.

See Also

[\[edit\]](#)



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See Also

[\[edit\]](#)

- [Converts to Islam](#)
- [Notable Former Muslims](#)
- [Lying](#) - *A hub page that leads to other articles related to lying*
- [Fake Conversions](#) - *A hub page that leads to other articles related to Fake Conversions*

References

[\[edit\]](#)

- ↑ [Neil Armstrong](#) - Wikipedia, accessed May 3, 2012
- ↑ Eric M. Jones - [One Small Step](#) - NASA, accessed June 6, 2012
- ↑ Matthew Cresswell - [How Buzz Aldrin's communion on the moon was hushed up](#) - The Guardian, September 13, 2012
- ↑ An image of this letter can be viewed [here](#).
- ↑ Arabia: The Islamic World Review, Issue June 1985/Ramadan 1405, p. 5
- ↑ James R. Hansen - [First Man: The Life of Neil A. Armstrong](#) - Simon & Schuster, 2005, pp 630-632, ISBN 9780743256315
- ↑ [Armstrong recalls moon landing](#) - The Star Online (Malaysia), September 7, 2005



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Azan in the Moon... Subhanallah..

Discussion in 'TurnToIslam Lounge !' started by Saeed O.J, Jul 20, 2007.

Thread Status: Not open for further replies.

< Jesus leads Steve Johnson to Islam | ONE EYE >



NO MOOD

Offline

Saeed O.J

Junior Member

Message Count:

61

Trophy Points:

0

Occupation:

Student

Location:

In between...

Ratings Received:

+0 / 0 / -0

In February 1983, fourteen years after his flight to the Moon, Astronaut Neil Armstrong went to Egypt to participate in a scientific conference. During the meeting, the azan sounded.

Armstrong, sitting in the presidium, went pale and asked: "What is that music?" Surprised by the astronaut's behavior, the conference participants explained that it was the Muslim call to prayer.

"That voice. **That's what I heard when I first stepped on the Moon, hearing it is giving me goose bumps!... O Allah! I found You not on Earth, but on the Moon!...** I stepped onto the Moon without praying, but now I will pray, you can consider me a Muslim." So the first person to walk on the Moon, Neil Armstrong, became a Muslim.

Saeed O.J, Jul 20, 2007

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hearing azaan on the moon

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shahid | Dec 9, 2006

There are alot of roumours surrounding the incident where niel armstrong went to the moon and heard the azaan being read.

My version is this:
 When Niel landed on the moon he had a surprise as he had never been there before (as u could expect)before coming back when he was walking on the moon he heard a voice. It was clearly the Azaan but he did not understand it???
 When niel arrived on earth in a press conference he stated how difficult the journey had been and that he heard a strange voice in a continous chant???
 Later that year niel travelled to a muslim country some say it was lebanon where as the majority state it was egypt.
 He heard the a similar voice almost 5 times a day and began to ask people what the voice was???
 Some people understood him and began to tell him that it was the azaan (the call for prayer)!!!
 Coincidence???
 Niel talked to an imam who told him more about Islam!
 From here my knowledge isn't great some say he stayed in the muslim country however facts show us that niel went back to America after converting to Islam!!!
 So there is reality!!!
 The American authorities began pressuring niel not to tell the truth fearing the reality may pass on!!!

People say it is impossible to hear sounds in ouer space however looking at islam we can see how the impossible have occured and something as small as a sound being heard in outer space is the least of miracles we can expect!!!
 Another point I want to make u can all check this if u don't believe me, type into google (Neil Armstrong becomes Muslim science)u should get a search stating that in one surah(chapter) of the Quran(hly book) it states that the moon will be split (divided, separated, dislocated) this is one prophecy that neil armstrong fulfilled as he took 21 kilograms of the lunar rock.
 Believing in Islam their are facts beyond search for more, because on the day of judgement u cannot then say we were unaware.
 Thank you
 If u hav any questions contact me on
 oo7_shahid@hotmail.com
 thats the letter o not zero
 also @yahoo.com

Report this post

Reply

seyed mokhtar | Apr 2, 2007

please tell me what happended for him now? where is he and has he embraced islam?

Report this post

Reply

sulaimaan | Nov 15, 2007

its very nice to learned about islam & as well as neil armstrong.. i always belive in this story of armstrong is good heard about islam.....first i heard this matter i think this rumours.. after learning the whole story i believe is true.....

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Neil Armstrong Heard Azan [Muslim Prayer Call] On Moon

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11 posts • Page 1 of 2 • 1 2

farhan89

Veteran



Posts: 221

Joined: 25 Apr 2008, 10:58

Location: Pakistan

by farhan89 • 27 Sep 2008, 20:05

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plz Post you Comments

Thank you

Last edited by farhan89 on 29 Sep 2008, 15:33, edited 1 time in total.



runawayslave

Junior



Posts: 43

Joined: 03 Feb 2008, 13:07

Location: london,uk

by runawayslave • 28 Sep 2008, 10:53

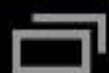
If this is true, It goes to show that there is a god after all, I would imagine going to the moon is a very spiritual experience

A moral lesson learned from a story or experience.



by ykbks • 28 Sep 2008, 17:50

indeed.. and, there are no accidents...





khujeci

People

Neil Armstrong & the Secret Muslim Hoax

August 26, 2012

With his death also ends that long-running urban legend that Neil Armstrong **heard azaan on the moon and converted to Islam**. I first heard this rumor from my Quran teacher when I was ten years old. Three decades on, the rumor persisted, amazingly– in spite of an official response from Armstrong himself.

"WHILE STRESSING HIS STRONG DESIRE NOT TO OFFEND ANYONE OR SHOW DISRESPECT FOR ANY RELIGION, ARMSTRONG HAS ADVISED DEPARTMENT THAT REPORTS OF HIS CONVERSION TO ISLAM ARE INACCURATE."



APOLLO OVER THE MOON: A VIEW FROM ORBIT (NASA SP-362)

Chapter 1 - Introduction

Harold Masursky, Farouk El-Baz, Frederick J. Doyle, and Leon J. Kosofsky



[For a high resolution picture- click [here](#)]

Objectives

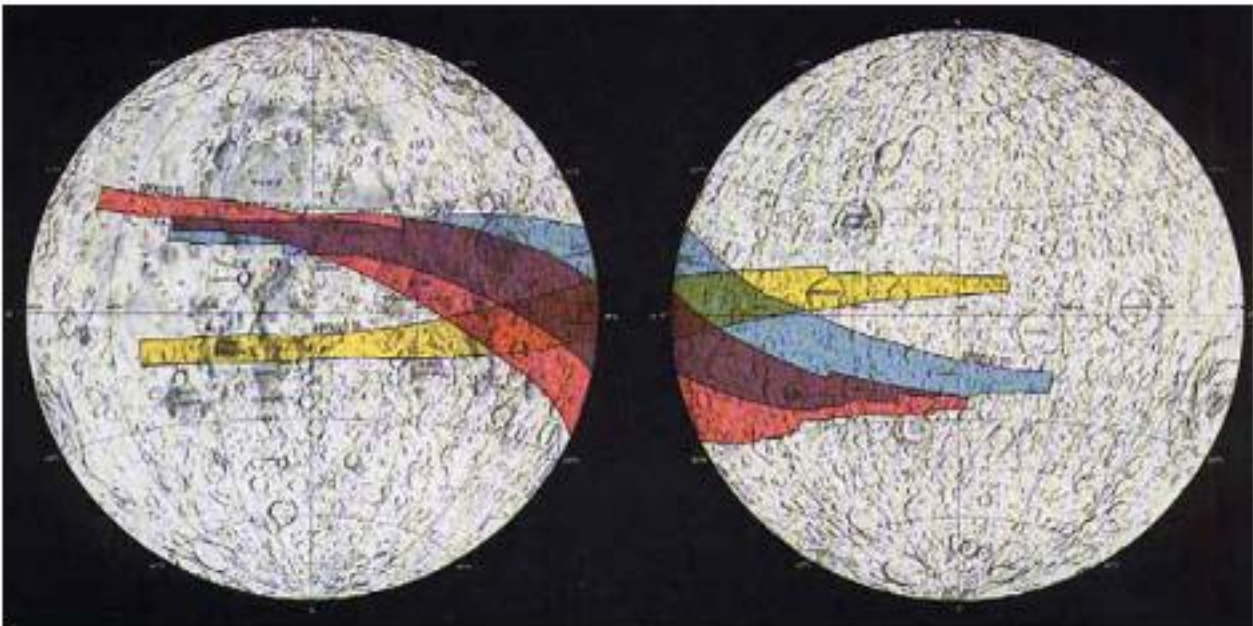
[1] Photography of the lunar surface was considered an important goal of the Apollo program by the National Aeronautics and Space Administration. The important objectives of Apollo photography were (1) to gather data pertaining to the topography and specific landmarks along the approach paths to the early Apollo landing sites; (2) to obtain high-resolution photographs of the landing sites and surrounding areas to plan lunar surface exploration, and to provide a basis for extrapolating the concentrated observations at the landing sites to nearby areas; and (3) to obtain photographs suitable for regional studies of the lunar geologic environment and the processes that act upon it. Through study of the photographs and all other arrays of information gathered by the Apollo and earlier lunar programs, we may develop an understanding of the evolution of the lunar crust.

In this introductory chapter we describe how the Apollo photographic systems were selected and used; how the photographic mission plans were formulated and conducted; how part of the great mass of data is being analyzed and published; and, finally, we describe some of the scientific results.

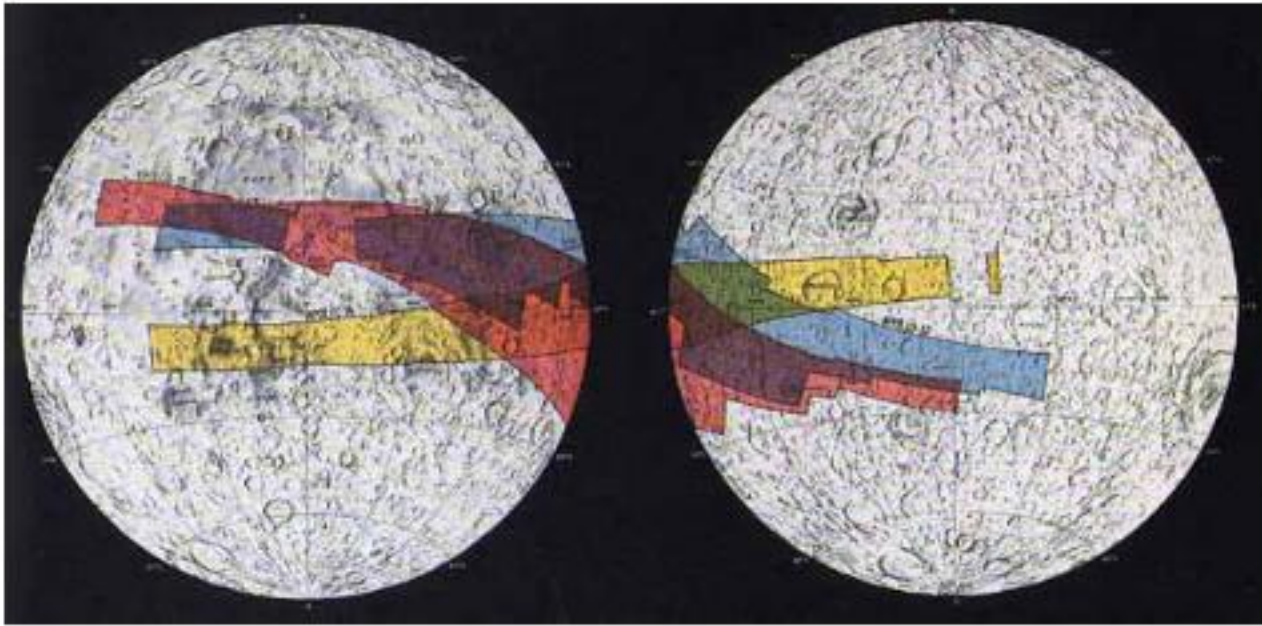
Historically most lunar atlases have used photointerpretive techniques to discuss the possible origins of the Moon's crust and its surface features. The ideas presented in this volume also rely on photointerpretation. However, many ideas are substantiated or expanded by information obtained from the huge arrays of supporting data gathered by Earth-based and orbital sensors, from experiments deployed on the lunar surface, and from studies made of the returned samples. These ideas are still evolving. The reader will notice that in some cases the authors of captions for the photographs in this volume interpret similar features differently, or place different emphasis on the relative importance of the various processes involved in the formation of such features. These differences in interpretation reflect in large part the evolving state of lunar data analysis and demonstrate that much work remains to be done before our goal of understanding the history of the Moon is reached. One of our goals with this volume is to convey an impression of the many exciting scientific results still emerging from the study of the photographs and other data already gathered.

At the termination of the Apollo program in December 1972, nearly 20 percent of the surface of the Moon had been photographed in detail....





Mapping camera coverage



Panoramic camera coverage

[2] FIGURE 1.-Above: Mapping camera coverage obtained by the Apollo 15, 16, and 17 missions. Only areas photographed in sunlight in the vertical mode are shown. Excluded are areas photographed obliquely, those in darkness beyond the terminator, and regional scenes taken after leaving lunar orbit. Facing page: Panoramic camera coverage obtained under the same conditions. [Base map courtesy of the National Geographic Society] [Note: For both maps: Near side is on the left and the Far side is on the right. Red: Apollo 15; Yellow: Apollo 16; Blue: Apollo 17. Chris Gamble, html editor]

...from orbit by a variety of camera systems (fig. 1). A selected sample of the nearly 18 000 orbital photographs so acquired is shown in this volume. (See [app. A](#) for an index of photographs.) The tremendous success of the Apollo photographic mission must be attributed ultimately to the great dedication, enthusiasm, and ability of the members of the Apollo program. Their efforts have resulted in a great harvest of new scientific information and a consequent increase in knowledge for mankind.

Orbital Science Photographic Team

Early in the Apollo program, then directed by Lt. Gen. Sam C. Phillips, it was realized that adequate planning for the acquisition of photographs would require the participation of many individuals acting in an advisory capacity. On September 6, 1968, prior to the flight of Apollo 8, an Ad Hoc Lunar Science Working Group was convened at the Manned Spacecraft Center (now Johnson Space Center), Houston, [3] Tex. The Working Group's function was to recommend target areas of scientific interest for lunar photography. This group planned and supported the photography done on the first five lunar orbital missions (Apollos 8 and 10 through 13; Apollo 9 was an Earth orbital mission) working with the Mapping Science Branch of the Science and Applications Directorate of the Manned Spacecraft Center. Hasselblad cameras with 80- and 250-mm lenses constituted the major photographic system employed on these early flights (table 1). ([App. B](#) contains a list of lunar probes.)

On December 14, 1969, a year before Apollo 14 was launched, Dr. Rocco Petrone, Apollo Project Director, established the Apollo Orbital....

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Camera	Mission									
	8	10	11	12	13	14	15	16	17	
Data acquisition (Maurer)	X	X	X	X	X	X	X	X	X	
70-mm EL (Hasselblad)	X	X	X	X	X	X	X	X	X	
70-mm DC (Hasselblad)	X	X	X	X	X	X	X	X	X	
Lunar topographic (Hycon)					X	X				
35-mm (Nikon)							X	X	X	
Mapping and stellar (Fairchild)							X	X	X	
Panoramic (Itek)							X	X	X	

[4] ...Science Photographic Team because Apollo 14 was the first mission to include an orbital mapping camera. The purpose of the team was to provide "scientific guidance in the design, operation, and data utilization of photographic systems for Apollo program lunar orbital science." The team included a chairman and 12 members who were specialists in the fields of geology, geodesy, photogrammetry, astronomy, and space photographic instrumentation:

- Frederick J. Doyle, Chairman (photogrammetry), U.S. Geological Survey
- Lawrence Dunkelman (astronomy), NASA Goddard Space Flight Center
- Farouk El-Baz (geology), Bellcomm, Inc.; later, the National Air and Space Museum, Smithsonian Institution
- William Kaula (geodesy), Institute of Physics and Planetary Physics, University of California at Los Angeles
- Leon J. Kosofsky (space photography), NASA Headquarters
- Donald Light (photogrammetry), Defense Mapping Agency Topographic Center
- Douglas D. Lloyd (space photography), Bellcomm, Inc.
- Harold Masursky (geology), U.S. Geological Survey
- Robert D. Mercer (astronomy), Dudley Observatory, Albany, N.Y.
- Lawrence Schirmerman (photogrammetry), Defense Mapping Agency, Aerospace Center
- Helmut H. Schmid (geodesy), U.S. Environmental Science Services Administration
- Ewen A. Whitaker (astronomy), Lunar and Planetary Laboratory, University of Arizona

As specified in the charter of the Apollo Orbital Science Photographic Team, its responsibilities included providing NASA with recommendations in the following areas:

- (1) Equipment functional specifications:
- (a) The team shall recommend functional requirement orbital photographic systems.
- (b) The team shall provide technical advice during the procurement phase for photographic systems.
- (c)The team shall be represented at photographic equipment ment reviews.

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- (1) Equipment functional specifications:
- (a) The team shall recommend functional requirement orbital photographic systems.

(b) The team shall provide technical advice during the procurement phase for photographic systems.

(c)The team shall be represented at photographic equipment ment reviews.
- (2) Equipment use:
- (a) The team shall participate in preparation of plans scientific use of the photographic systems and sup mission operations planning.

(b) The team shall participate in planning for coordinated, use of photographic systems to support other experiments.

(c) The team shall participate in planning for other experiments that will support photography.

(d) The team shall participate in operations planning photo graphic requirements to support Apollo lunar landing site selection.
- [5] (3) Crew training: The team shall provide technical advice for and will support, as requested by the Manned Spacecraft Center, astronaut training related to photographic tasks.
- (4) Real-time operations: The team shall support operations as requested by providing real- time scientific and technical advice to astronauts for photographic and related tasks.
- (5) Data processing:
- (a) The team shall provide technical advice in selection of film and film processing requirements to optimize postmission scientific analysis by photographic users.

(b) The team shall recommend major data reduction equipment and analysis procedures to assure that optimum scientific use is made of the photographic data obtained.

Analysis of the photographic data was carried out by a broad spectrum of scientists representing the following institutions: the U.S. Geological Survey, Bellcomm, Inc., the University of Arizona, Ames Research Center, and the Smithsonian Institution. H. Masursky directed and collated for publication the results of the studies relating to the scientific interpretation of the photographs. He and his colleagues, T. A. Mutch of Brown University and G. W. Colton, K. A. Howard, and C. A. Hodges of the U.S. Geological Survey, performed the same function for the last three Apollo missions. Many of the studies were performed as part of the later NASA-funded experiment S-222, which analyzed data after the completion of the flights.

Orbital Camera Systems

In preparation for the Apollo program of landing men on the surface of the Moon, the Lunar Orbiter project inserted five spacecraft into lunar orbit. Their cameras photographed almost all of the lunar surface (Kosofsky and El-Baz, 1970; NASA Langley Research Center, 1971). However, the nature of the camera's electronic readout system was such that it was difficult to measure positions on the lunar surface accurately from the Lunar Orbiter pictures. Another disadvantage was that little stereoscopic coverage was obtained, making three-dimensional measurements impossible. Furthermore, most Lunar Orbiter pictures were taken under low Sun angles so that few high Sun pictures showing differences in albedo were available. The Apollo photographic systems succeeded in correcting these conditions.

Two groups of cameras were used for Apollo orbital photographs: those in the command module (CM) which were handheld or mounted on brackets and operated by the astronauts, and those that were stowed in the scientific instrument module (SIM) bay in the service module (SM) and remotely operated by the astronauts from the CM. Table 1 lists the photographic systems carried on these missions, and table 2 lists their characteristics.

Hasselblad cameras, using both black-and-white film and color film, were carried on all lunar orbital flights of the Apollo program. On Apollo missions 8 through 14 the bulk of the photogeologically useful pictures acquired was taken with the Hasselblad systems. Hasselblad....

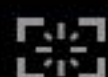
[6-7] TABLE 2. -Characteristics of Camera Systems Carried on Board the CSM on Apollo Lunar Missions 8 Through 17

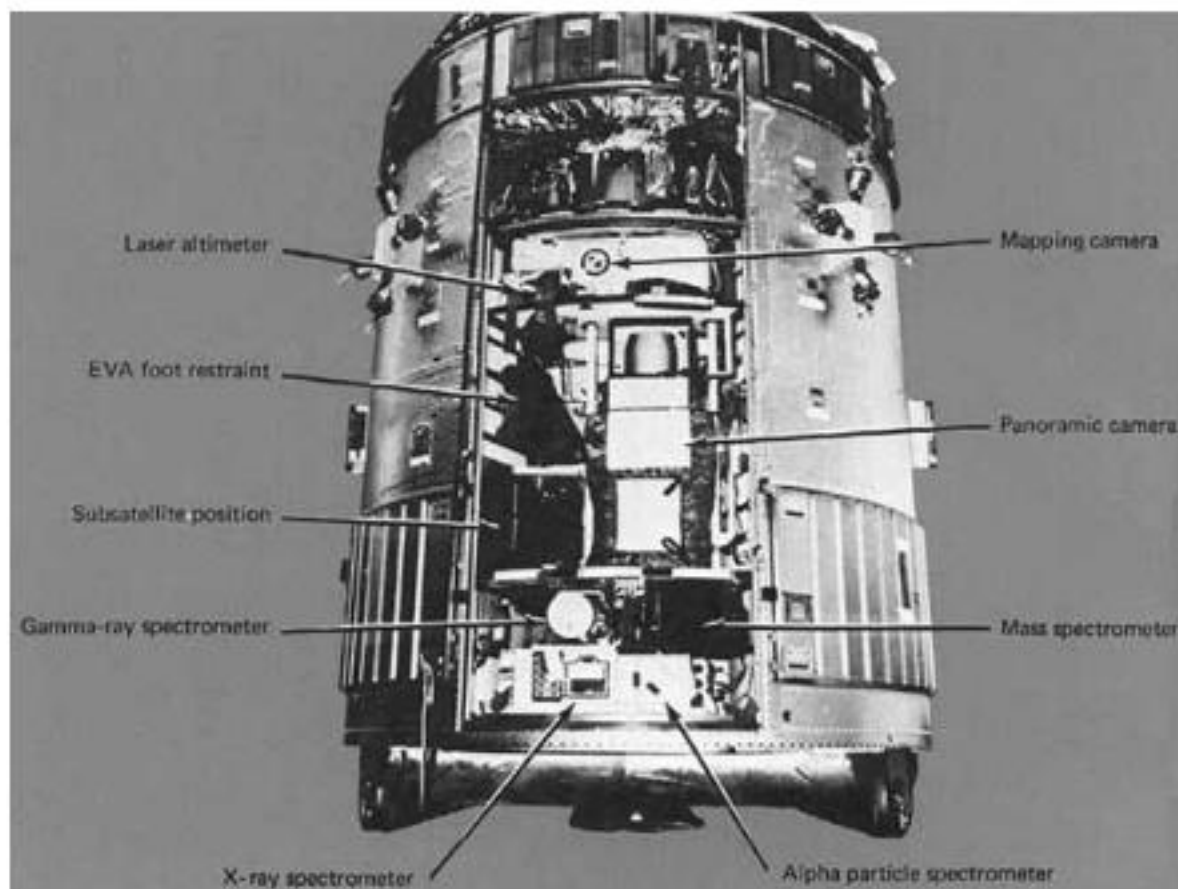
Camera	Features	Film size and type	Uses
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[6-7] TABLE 2.-Characteristics of Camera Systems Carried on Board the CSM on Apollo Lunar Missions 8 Through 17

Camera		Features	Film size and type	Uses
SIM bay:	Mapping (Fairchild)	Electric; 76-mm focal length lens; reseau crosses, fiducial marks, time, altitude, shutter speed, and forward motion control setting recorded on each frame.	127 mm; type 3400 Panatomic-X aerial.	To provide mapping quality photography (25- to 30-m resolution)-when used stereoscopically and in conjunction with auxiliary data, the geometry of the lunar surface can be reconstructed with a higher degree of precision than possible with earlier systems.
	Stellar (Fairchild)	Part of mapping camera system; 76-mm focal length lens; axis oriented at 96 to mapping camera axis; exposure synchronous with mapping camera exposures; reseau crosses, fiducial marks, time, and altitude recorded on each frame.	35 mm; type 3401 Plus-X aerial.	To record star field at a fixed point in space relative to mapping camera axis so that orientation of the latter can be accurately determined for each mapping camera frame.
	Panoramic (Itek)	Electric; 610-mm focal length lens; optical bar design for high-resolution and image motion compensation; frame number, fiducial marks, time, mission data, velocity/height ratio, and camera-pointing attitude recorded on each frame.	127 mm; type EK 3414.	To provide strips of high-resolution (about 2-m) stereoscopic coverage for relatively large-scale topographic mapping and for detailed photogeologic analysis.
CM:	Hasselblad EL	Electric; interchangeable 80-, 105-, 250-, and 500-mm focal length lenses; 105-mm lens transmits ultraviolet (UV) wavelengths.	70 mm; color reversal films SO-121 and SO-368 Ektachrome MS; black and white films 3400 Panatomic X, 2485, SO-349 aerial, and 3414 aerial; spectroscopic film (W-sensitive) Ila- O. ^a	To document operations and maneuvers; to obtain convergent stereoscopic coverage of candidate landing sites, particularly with the 500-mm lens; to photograph preselected orbital science targets, different terrain types near the terminator, astronomical phenomena, views of the Moon after transearth injection, views of Earth, and to acquire special UV spectral photographs of the Moon and Earth. ^b
	Hasselblad DC	Electric; 80-mm focal length lens; reseau plate.	70 mm; black and white films 2485, 3400 Panatomic X, and SO-349 aerial. ^a	To obtain strips of stereoscopic coverage of the approach paths to candidate landing sites, as well as of orbital science targets. ^b
	Lunar topographic (Hycon, later Actron)	Vacuum platen and image-motion compensation; 457-mm focal-length, f/4 lens; fiducial marks, time, and shutter speed recorded on each frame.	127 mm; black and white films 3400 Panatomic X and SO-349 aerial. ^a	Primarily to obtain high-resolution coverage of the Apollo 16 candidate landing site area near Descartes on the Apollo 14 mission. Camera malfunction prevented achieving this and most other goals. ^b
	Data acquisition (Maurer)	Electric; interchangeable 5-, 10-, 18-, 75-, and 200-mm focal length lenses.	16 mm; color reversal films SO-368 Ektachrome MS, SO-168 Ektachrome	To document engineering and operational data, experiment records within





[8] FIGURE 2 [above] .-Arrangement of the equipment used for the orbital experiments conducted from the SIM bay during Apollos 15 and 16 is shown. A largely different assortment of instruments was carried on Apollo 17. The extravehicular activity (EVA) foot restraint is used by the astronaut who retrieves the exposed film from the cameras during the return of the spacecraft to Earth.

...photographs were used to study future landing sites, to perform geologic mapping, to conduct geodetic studies, to study the regional and local geology of the Moon, and to train astronauts for later lunar missions.

On Apollo missions 13 and 14, a lunar topographic camera (the Hycon camera) was carried in the CM. A very limited amount of photography was obtained with it, however, because the Apollo 13 mission was aborted before tile photographic phase was to have begun and on Apollo 14 the camera malfunctioned early in lunar orbit, just as the spacecraft approached the Apollo 16 candidate landing site in the Descartes region. The necessary photographs of the Descartes area were obtained with the Hasselblad (500-mm lens) camera by pitching the spacecraft to compensate for its forward motion in orbit so that no image smear appeared on the photographs.

On Apollos 15 to 17 the much-more-sophisticated mapping and panoramic camera systems were used. These, and other remote sensing instruments, were mounted in the SIM bay that was added to the CSM for the last three missions (fig. 2). Higher resolution and much more systematic coverage of the ground track areas traversed by the spacecraft were obtained with these cameras. Personnel from the Flight Operations Directorate, Johnson Space Center, monitored the performance of the instruments and were essential to the successful acquisition of the data.

The mapping camera system consisted of a terrain camera coupled to a stellar camera and a laser altimeter. Each exposure of the terrain camera was accompanied by a stellar camera exposure of the star field to provide a means of determining the orientation of the spacecraft in space. Simultaneously the laser altimeter recorded the height of the [9] spacecraft above the Moon's surface. At nominal orbital altitude the terrain camera was capable of resolving objects on the surface as small as 25 to 30 m on a side. The geometry of the optical system of the terrain camera permitted the metric pictures to be used for precise triangulation and cartography. Thus they can be used for three purposes: (1) to construct a geodetic network of control points for topographic mapping with both terrain and panoramic camera photographs, (2) to compile medium-scale topographic maps, and (3) to perform photogeologic interpretation.

The panoramic camera, capable of attaining 1-m resolution on the surface from orbital altitude, provided high-resolution stereoscopic photographs of the surface during periods of varying Sun angle conditions. High Sun angle pictures show differences in albedo to advantage, and low Sun angle pictures delineate small and low relief features more clearly.

Detailed Camera Description and Stereograms

The Metric Camera System

The coordinated operation of the three components of the mapping camera system is illustrated schematically in figure 3. Except when in use, the mapping camera system is in a retracted position in the SIM bay. During photographic sequences the system is extended on rails to a point where the terrain and stellar cameras have clear fields of view. The components of the system are illustrated in different degrees of detail in figures 4 through 6. The terrain camera component has a 76-mm, f/4.5 lens to cover a square frame 114 mm on a side. The shutter consists of a pair of continuously rotating disks and a capping blade. An automatic exposure device selects the correct disk speed to provide a range of exposures from 1/15 to 1/240 s in duration. The film is held precisely in place by pressure against a movable glass stage plate that contains reseau marks. Fiducial marks are flashed on the film marking the optical axis at midexposure time. Simultaneously, the time of exposure, to the nearest millisecond, according to the spacecraft clock is recorded on the data block on each frame. The film magazine holds 460 m of 127-mm film-enough for 3600 frames. The terrain camera was designed to compensate for the image blur that would otherwise be present in a picture taken from a rapidly moving camera: the stage



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The stellar camera exposes 35-mm film with a 76-mm f/2.8 lens. Each exposure, of 1.5-s duration, is made simultaneously with an exposure of the terrain camera. In the stellar camera the film is pressed against a glass stage plate that bears an array of 25 reseau crosses. The....

[10]

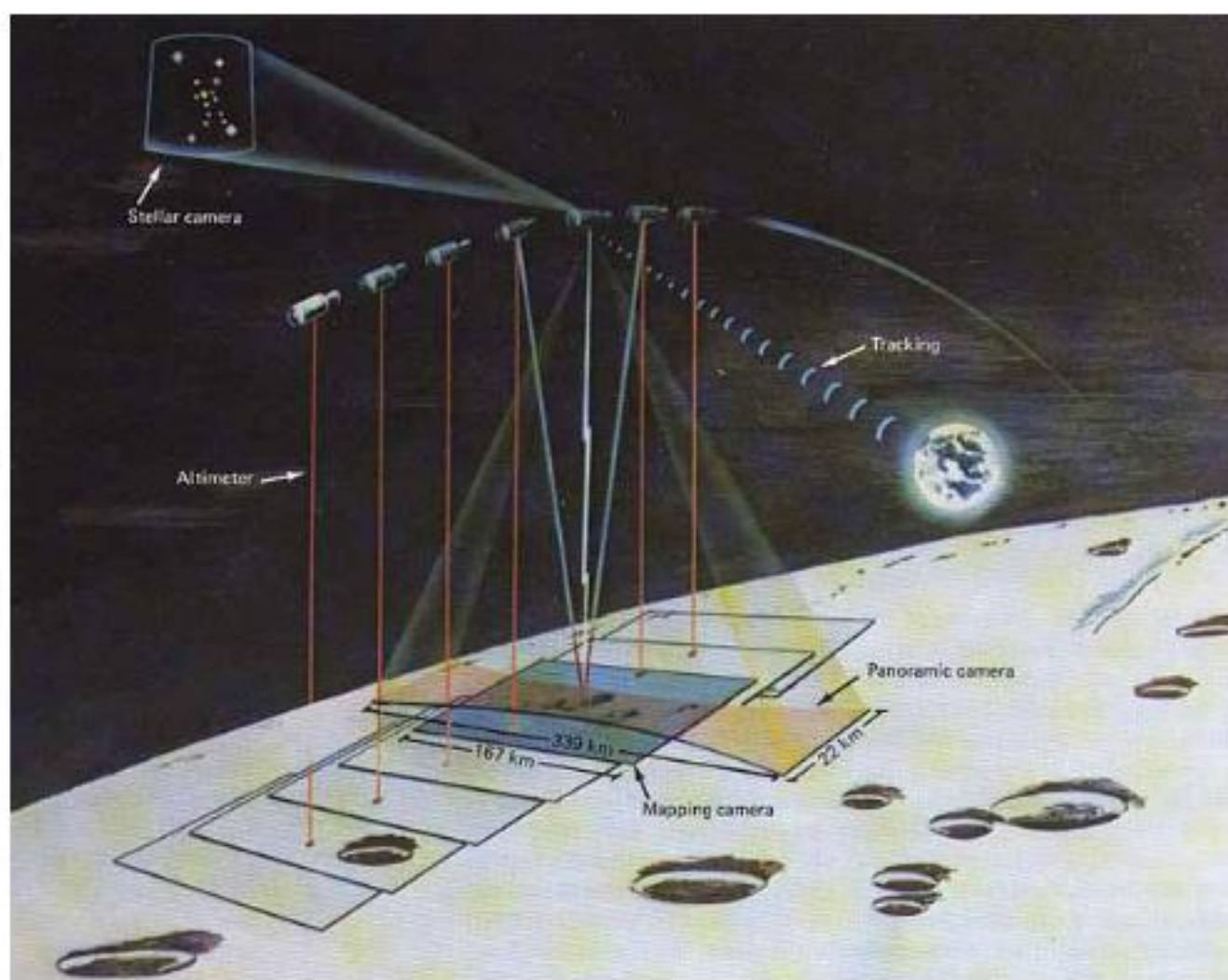
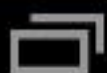


FIGURE 3 [above].- The mapping camera system in operation. During normal photographic operations the terrain camera automatically exposes a series of pictures of the Moon's surface. When the camera axis is perpendicular to the surface (red lines), each exposure outlines a square area (the blue parallelogram in this perspective view). The areas covered by each exposure overlap to form a continuous strip across the surface. The position of the spacecraft in orbit is recorded continuously by radiotracking stations on Earth; however, for precision photography the orientation as well as the position of the spacecraft must be known. This is accomplished with the stellar camera component, which takes a picture of part of the star field each time a terrain camera picture is taken. The stellar camera thus provides the data needed to orient the spacecraft and the terrain camera. The distance to the lunar surface is measured with the laser altimeter. At each exposure of the terrain camera, a beam of light (red lines) from the altimeter is pulsed to the surface (to the center of the area being photographed), and its time of return is recorded. Because the velocity of light is known, the distance between the spacecraft and the Moon is easily calculated. This diagram also shows the relationship in size and shape of areas covered by the terrain (blue) and panoramic (tan) cameras.-G.W.C.



[11] FIGURE 4 [right].- The Apollo mapping camera system, which consists of a terrain or mapping camera, a stellar camera, and a laser altimeter. The three components can be located by referring to figure 5. [Photograph courtesy of the Fairchild Camera and Instrument Corporation]

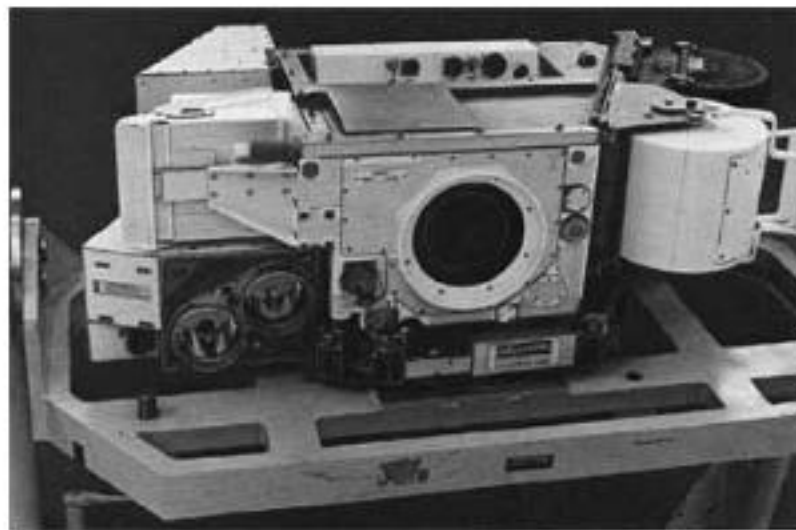


FIGURE 5 [right].- A schematic drawing showing the major components and selected parts of the mapping camera system. The angular fields of view (FOV) are given in degrees for the stellar and mapping (or terrain) camera components.

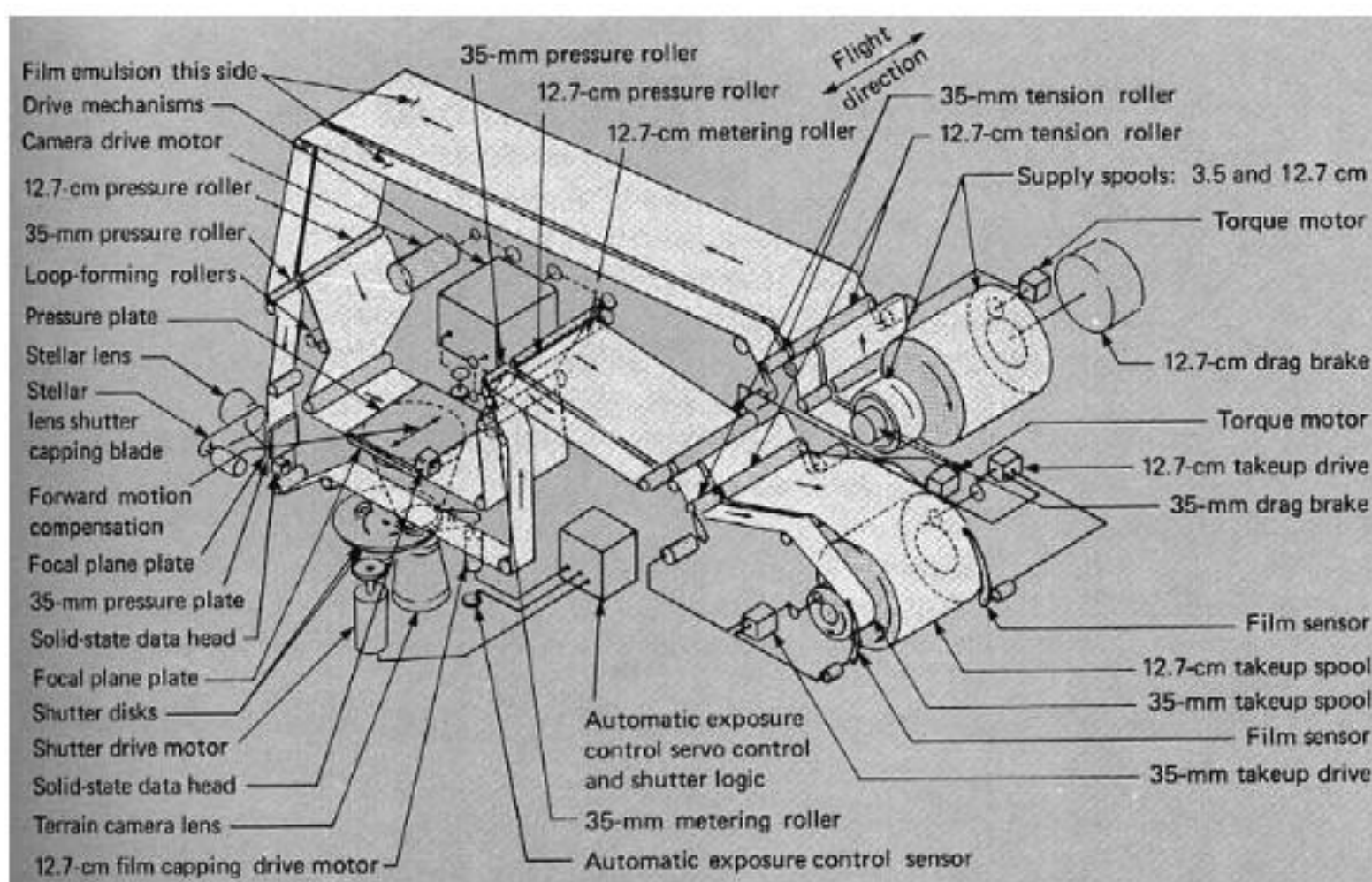
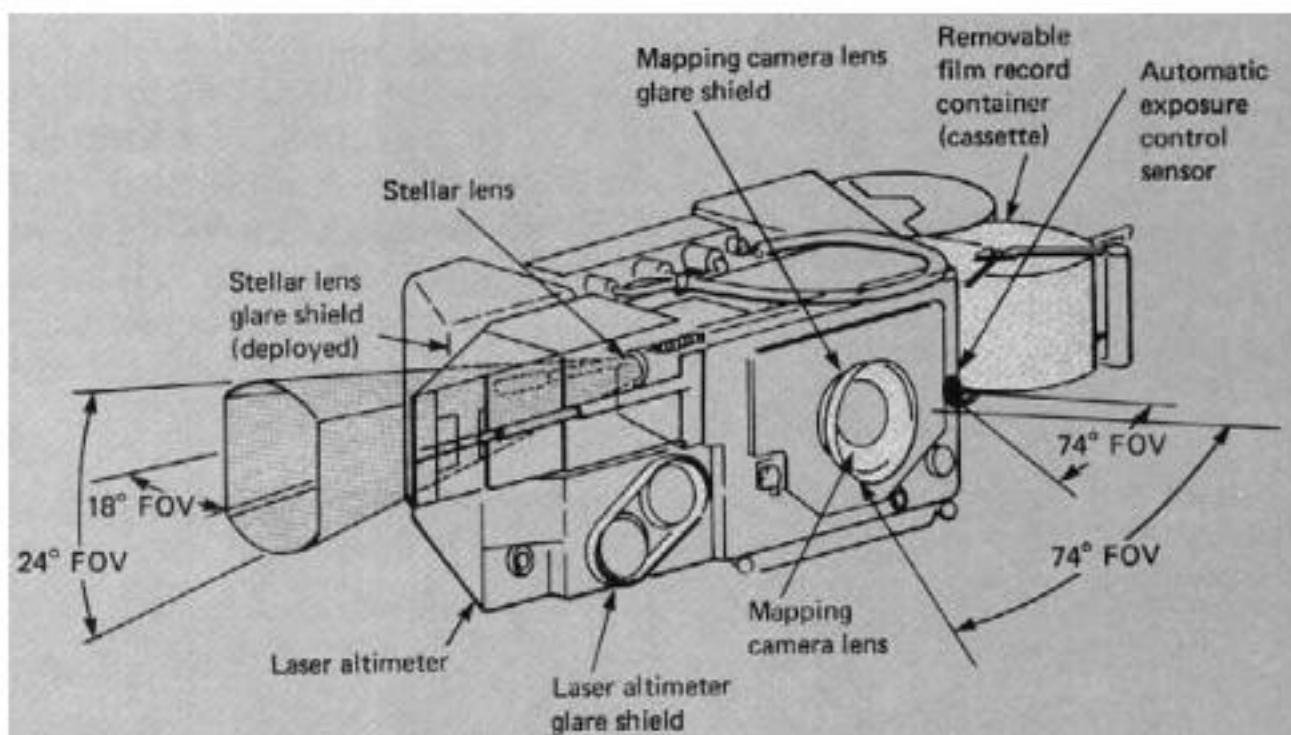


FIGURE 6 [above].- The terrain camera mechanism. (For a more complete description, see Kosofsky (1973).)

The Panoramic Camera

High-resolution stereoscopic coverage of large areas of the lunar surface was provided by the panoramic camera. The camera used on the Apollo missions, a modified version of the U.S. Air Force's KA-80A "optical bar" camera, was manufactured by Itek Corp.

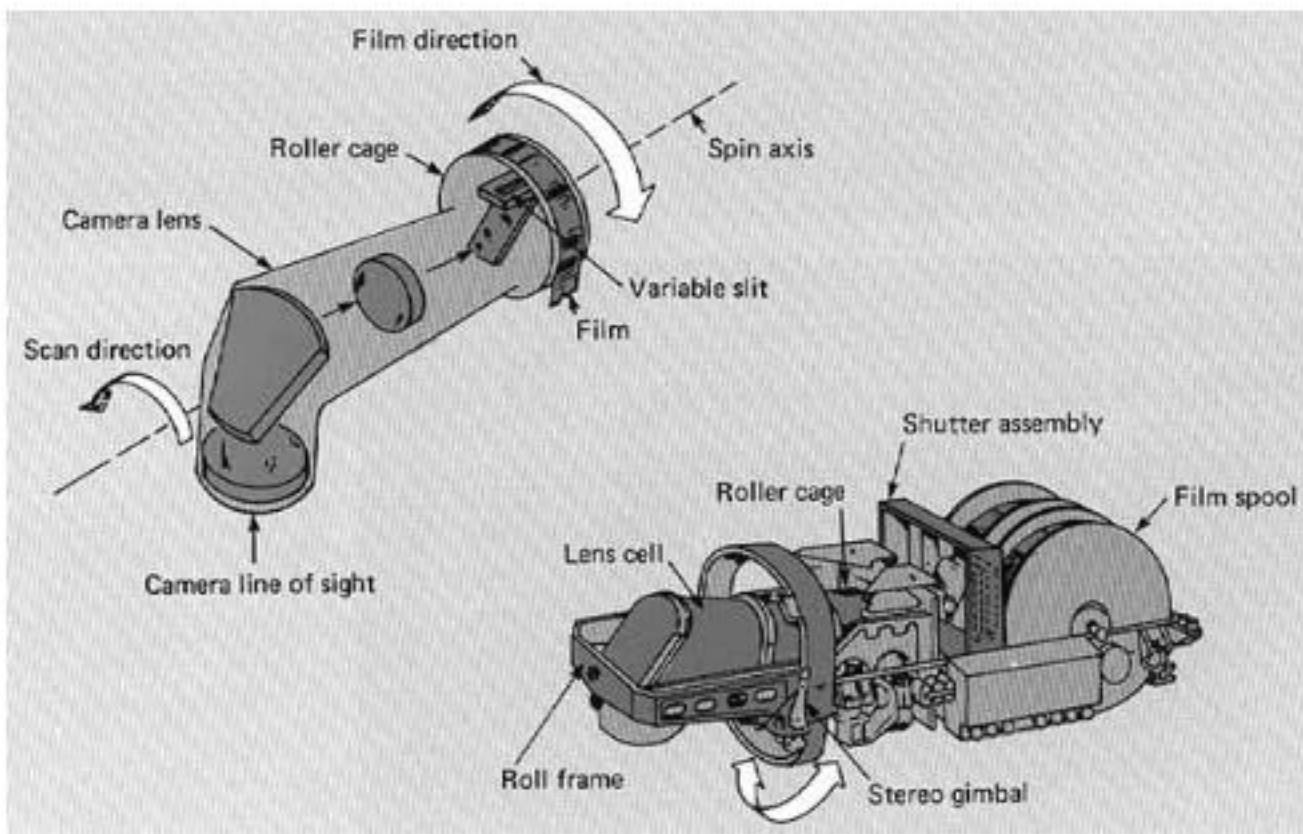
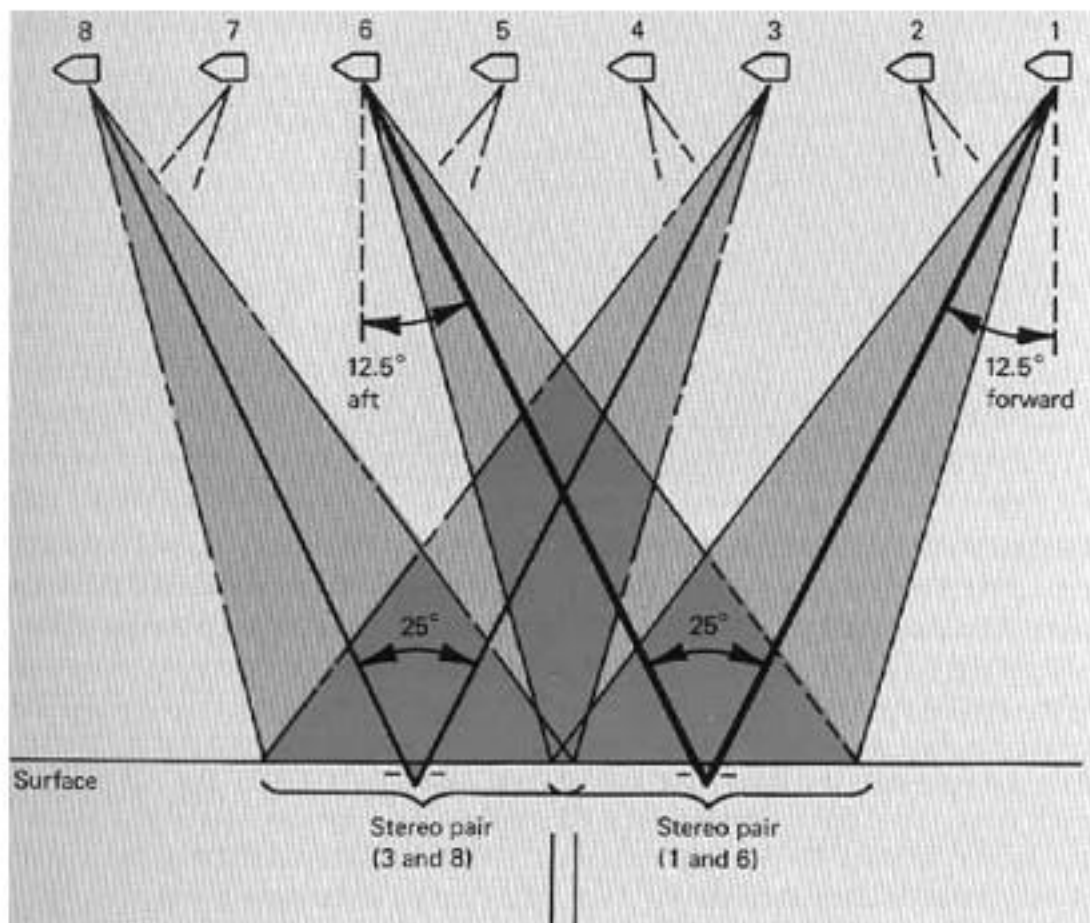


Figure 7 [above].- The panoramic camera shown diagrammatically. Left: The optical bar concept. Right: The camera mechanism with covers removed.

The panoramic camera mechanism allowed an exceptionally wide area to be covered with a narrow-angle lens. This is accomplished by [13] rotating the lens during the exposure. The 610-mm f/3.5 lens has eight lens elements and two folding mirrors. The optical bar, consisting of this optical system, an exposing slit, and a roller cage that supports the film, rotates continuously during camera operation. Film exposure starts at 54° on one side of the flight line and extends to 54° on the other side for a total scan of 108° perpendicular to the flight path. In the direction of flight, the field of view is 10.6° . The photographic exposure of the film is determined by the rate of rotation of the optical bar and the width of the slit. To prevent image smear due to the rotation of the lens, the film is pulled across the slit in the opposite direction.

The optical bar and the motor that spins it are mounted in a roll frame that is connected to the camera's main frame by a gimbal structure (fig. 7). By rocking the roll frame about this gimbal, the camera provides both stereoscopic overlap and forward motion compensation. The exposures are made with the roll frame rocked alternately 12.5° forward and 12.5° aft (fig. 8). The camera cycle rate is controlled so that the ground covered by a forward-looking photograph is covered again five frames later by an aft-looking photograph, thus providing a stereo pair. During the time (about 2 s) that each of these exposures is being made, the same gimbal mechanism "freezes" the ground image by matching the rocking motion to the angular rate at which the ground passes beneath the spacecraft. The camera's v/h sensor, which measures this rate continuously, is the pacemaker for the entire operation.



[15]



FIGURE 10 [above].- Astronaut Ron Evans retrieving film from the SIM bay cameras while the Apollo 17 spacecraft was returning to Earth.

...repeated every 6 s. A load of film sufficient for 1600 exposures is 2 km long and weighs 25 kg. Because the forces that would be required to start and stop such a mass of film intermittently are prohibitively large, the supply and takeup spools actually rotate continuously during camera operation. An ingenious "shuttle assembly" functions as a buffer between the continuous and the intermittent film movements. In the interval between exposures, the supply side of the shuttle accumulates enough film for the next frame while the takeup spool empties the takeup side of the shuttle.

The arrangement of the camera parts can best be studied in the accompanying photograph (fig. 9), which shows the camera as it would be seen from outside the SIM bay if the light-excluding covers were removed. A more detailed description of the camera systems is given in Kosofsky (1973).

The film cassettes from both the metric and panoramic cameras were recovered by the command module pilot (CMP) on the way back to Earth (fig. 10) and stored in the CM for later processing at the Photographic Technology Laboratory, Johnson Space Center.

[16] Photographic Mission Plans and Accomplishments

Personnel from the Science and Applications Directorate and the Apollo Spacecraft Programs Office were responsible for designing the mission plans. The final plans incorporated many of the recommendations made by the Apollo Orbital Science Photographic Team.

Metric camera photography for Apollo 15 had several limiting constraints set by the instrumentation, the requirements of other SIM bay experiments, and the orbital plane of the CM. The high inclination of the Apollo 15 orbital plane (approximately 25° from the equator; see fig. 1) resulted in a relatively wide separation of the ground tracks of succeeding revolutions. Because 60 percent side overlap was required for pictures taken in adjacent orbits, careful planning and budgeting of the film was required.

The performance of other scientific experiments using instruments in the SIM bay prohibited concurrent use of the metric camera during some parts of the mission. Some of the experiments were conducted with the SIM bay pointed away from the Moon. During most of the time devoted to the geochemical experiments, such as the gamma ray spectrometer experiment, the SIM bay was pointed toward the lunar surface but the metric camera was retracted and the lens was covered to prevent radioactive thorium contained in the camera and laser altimeter lenses from interfering with the spectrometric measurements. During one orbit, as a test, the two instruments were run concurrently. Radiation from the lenses was less than anticipated; consequently, during the Apollo 16 mission, the two instruments were run concurrently, with only slight degradation of the spectrometric measurements.

Despite constraints such as these, all objectives of the Apollo 15 photographic plan were met, and an excellent set of vertical metric photographs was acquired. In addition, many oblique photographs looking 40° fore and aft and to the north and south of the ground tracks were obtained; although they are of limited use in making topographic maps, they are extremely useful in photogeologic studies.

The panoramic camera on Apollo 15 obtained excellent, very useful photographs, even though its operation was subject to constraints similar to those placed on the mapping camera system. Furthermore, the panoramic camera could only be run for about one-half hour (half the sunlit portion) of any given orbit because of thermal limitations on the instruments. The area of coverage was limited to the same area covered by the mapping camera system because only the latter could provide the geodetic control necessary for constructing mosaics and orthophoto maps from the panoramic camera pictures.

On the Apollo 16 mission, film budgeting was not difficult because the low angle of the orbital plane (about 9° from the equatorial plane) restricted the spacecraft to a narrow orbit belt and hence limited the width of the area that could be photographed from the vertical mode (fig. 1). The planned coverage for both systems was obtained long before the film loads were consumed. The original mission plans were to take the metric and panoramic photographs very early and very late in the orbital phase when the near-side terminator had progressed far enough west to permit photographing the western limb. However, early in the orbital phase problems developed with the spacecraft orientation mechanism that forced a decision to shorten the mission time by 1 day. Although the time available for orbital photography was less than originally planned, about 90 percent of the planned photographic coverage was obtained. Only the westernmost part of the orbital tracks was not photographed.

The orbital attitude of the Apollo 17 spacecraft was similar (about 20° from the equatorial plane) to that of Apollo 15; because much of the ground track area had previously been photographed by the earlier mission (fig. 1), the 60 percent overlap requirement was waived. In some areas previously photographed during the Apollo 15 mission, photographs were obtained when the Sun angle was different from that of the earlier photographs; additional information was supplied in this way.

Apollo 17 carried several new orbital experiments including the infrared scanning radiometer, the UV spectrometer, and the lunar



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Cartographic Mapping Products

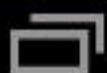
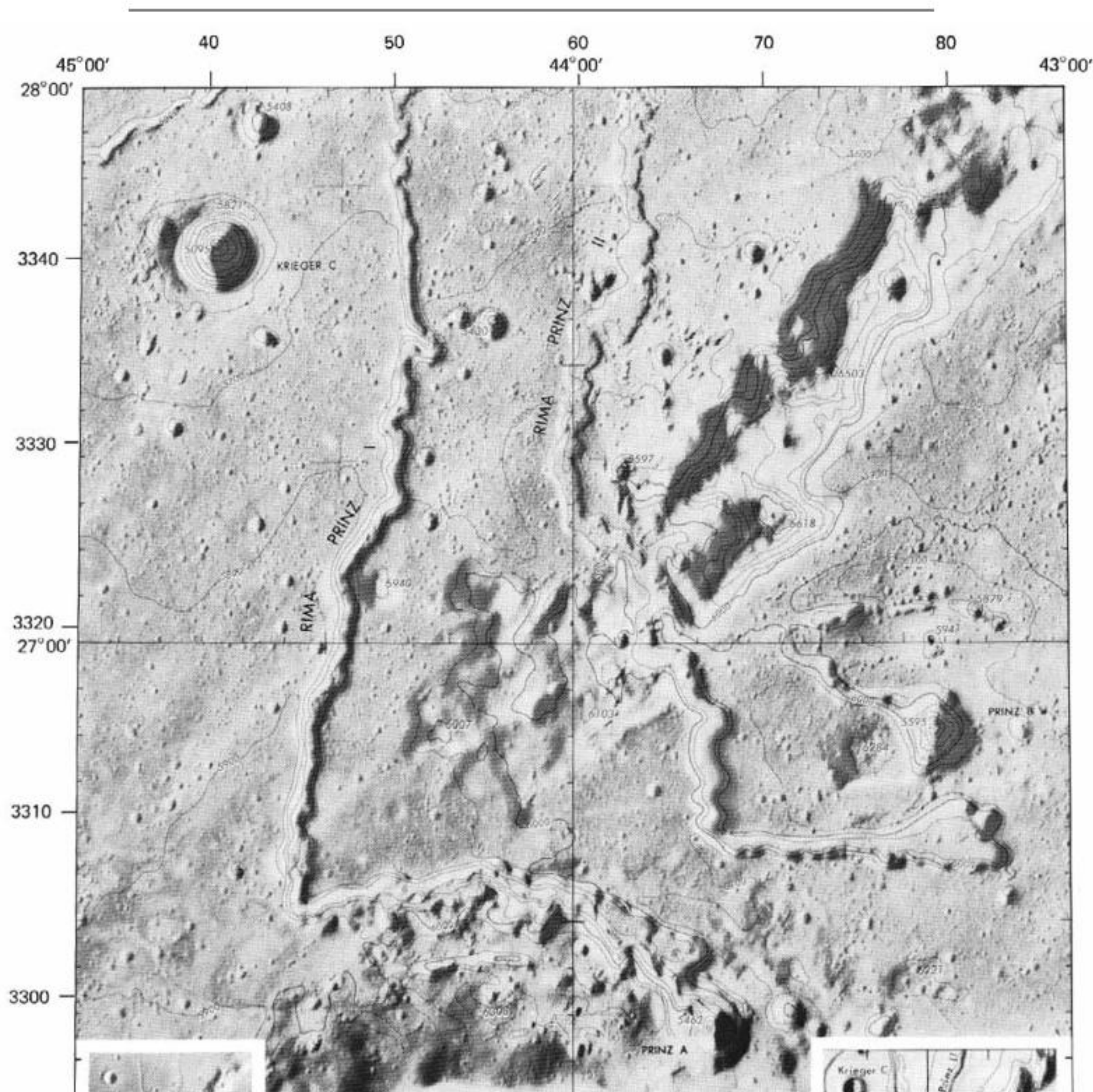
When the Apollo program ended with the successful completion of mission 17, nearly 10 000 metric and 4800 panoramic photographs had been acquired. Controlled orthophotomaps at a scale of 1:250 000 (fig. 11) are being made from the metric photos; the panoramic camera photographs are being used to make large-scale maps at 1:50 000 and 1:10 000 scale for particular areas of scientific interest (fig. 12). The basic data analysis scheme for converting the raw photographs into finished map products is described in [Appendix C](#) (Doyle, 1972). The production of these maps is a massive undertaking and will take many years to complete.

Copies of individual Apollo photographs may be ordered from-

National Space Science Data Center
Goddard Space Flight Center
Greenbelt, Md. 20771

Orthophotomaps and other cartographic products may be obtained from-

Lunar and Planetary Programs Office
National Aeronautics and Space Administration
Washington, D.C. 20546



[19] FIGURE 11 [above].- An example of the detailed topographic portrayal made possible by mapping camera photographs. The sample area shown is part (about one-fifth) of Lunar Orthophoto Map sheet LTO39A3(250), prepared by the Defense Mapping Agency Topographic Center, Washington, D.C., and published in 1973. The rilles are Rima Prinz I and II in northern Oceanus Procellarum. Topographic contour lines (lines of equal elevation) in red are superposed on an orthophotograph version of mapping camera frame AS15-2474 enlarged to the scale of the map. For comparison (or contrast) that portion of the frame corresponding in area to the sample map is shown in the lower left corner. At the lower right is the same area as it appeared on Lunar Aeronautical Chart (LAC) 39, which was one sheet of the earliest series of detailed cartographic maps of the Moon showing surface relief. Compiled entirely from photographs taken through Earth-based telescopes and from direct telescopic observations, it was published in 1963 by the U.S. Air Force Aeronautical Chart and Information Center, St. Louis, Mo.-G.W.C.

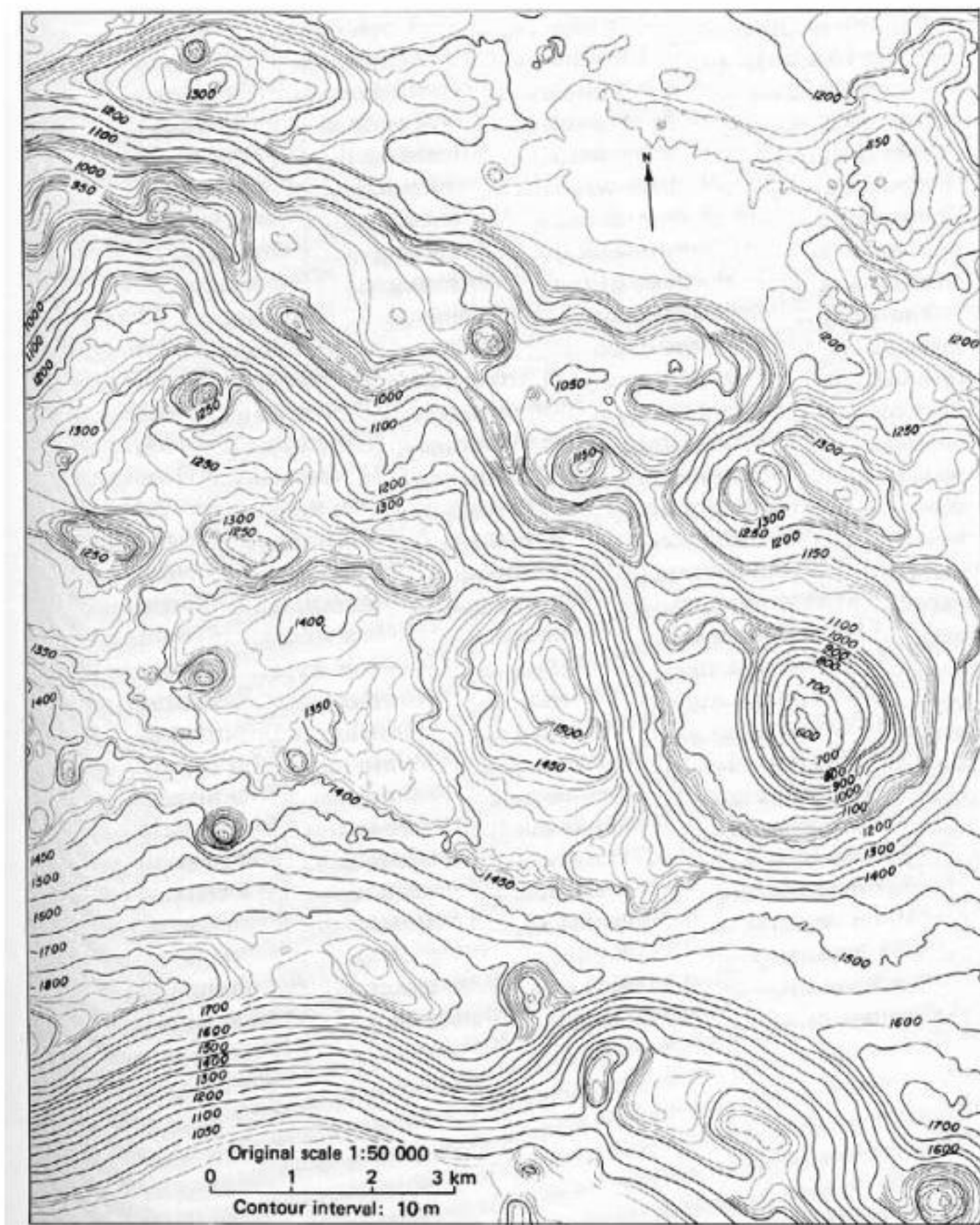


FIGURE 12 [above] .-Another example of the versatility of photographs taken of the lunar surface from orbital altitudes. This topographic contour map was compiled by photogrammetric methods from two Apollo 15 panoramic camera frames. It shows a small area around the head of Rima Prinz I, one of the rilles covered in the preceding map (fig. 11). It was prepared in Flagstaff, Ariz., in support of a geologic study of rilles and their origin. It will not be published separately, hence, many of the stylistics of a map prepared for publication are lacking. Nevertheless, it is a fine example of what can be "seen" in panoramic camera pictures taken, in this case, at an altitude of 119 km.-G.W.C.

Selected Orbital Experiments

[20] In this section we discuss only those orbital experiments that collected data relevant to photointerpretation. All of the instruments used for these experiments were transported in the SIM bay.

The gamma ray spectrometer (GRS) experiment aboard Apollos 15 to 16 detected gamma rays produced by the radioactive decay of materials on the lunar surface; areal variations in the intensity of gamma radiation make it possible to map the distribution of rock



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The X-ray fluorescence (XFE) experiment was used on Apollo missions 15 and 16 to measure the chemical composition of the Moon. The sunlit portion of the Moon is constantly bombarded by solar X-rays. It is the secondary fluorescent X-rays emitted from the lunar surface material that are detected and measured by this experiment. In particular, the characteristic wavelengths and energies of magnesium, aluminum, and silicon were detected. Variation of the ratios of Mg/Si and Al/Si are extremely useful for determining the chemical composition and hence the type of rock constituting the surface materials.

The bistatic radar experiment, conducted on Apollo missions 13 through 16, measured the electromagnetic and structural properties of the outer few meters of the Moon's crust. Radio signals emitted from the CSM were reflected from the Moon and recorded by radiotelescopes on Earth. As the CSM orbited, the impinging beam of radiowaves, which covered a 10-km-square area of the surface, scanned the lunar disk. The characteristics of the areas so measured were then interpreted in terms of dielectric properties, size of the fragments composing the surface debris, and the magnitude and frequency of sloping surface. The experiment thus provides a means of measuring the small-scale "roughness" of the lunar surface.

The particles and fields subsatellite magnetometer experiment was conducted during Apollos 15 and 16. Instrumentation consisted primarily of a magnetometer mounted on a subsatellite transported in the CSM SIM bay. The subsatellite was inserted into lunar orbit shortly before the CSM began its return to Earth. The purpose of the magnetometer was to record variations in time and space of the magnetic field at Apollo orbital altitudes. The resulting data are being used to complement data obtained by the magnetometers placed on the surface of the Moon and the magnetometer carried onboard the much higher orbiting Explorer 35.

The S-band transponder (SBT) experiment was conducted on the last three missions, and gravity field observations were made on all missions.

[21] The transponder was used to measure areal variations in the Moon's near-side gravitational field by recording very slight changes in the velocity of the orbiting CSM, subsatellite, and the LM. Changes in the gravitational field are caused by differences in density of the rocks. The experiment thus provides data for mapping the density of the rocks composing the upper part of the lunar crust. Radio signals transmitted to the three orbiting spacecraft components from Earth were multiplied by a constant (for electronic reasons) and then retransmitted to Earth. The difference in frequency between the transmitted and returned signals is a function of the velocity of the spacecraft.

The Apollo lunar sounder (ALSE) experiment was conducted only on Apollo 17. It used radar techniques to "see" into the Moon to depths as great as 1 1/2 km. The sounder was designed for three primary modes of operation: the sounding mode detected and mapped subsurface features, and the profiling and imaging modes provided quantitative metric and topographic data as well as albedo measurements. Three frequencies of radiowaves were transmitted to the Moon from antennas mounted on the SM. Some of the waves were reflected by the lunar surface while others penetrated to various depths depending upon the type of material encountered. Those that penetrated the Moon were reflected by layers of rock within the Moon. The reflected component of the radiowaves was detected by the spacecraft antennas, delivered to the receiver, amplified and converted to light signals, and recorded optically on photographic film. The character of the reflected waves furnishes information about the nature of subsurface layers, and their return times tell the depth of the reflecting layers.

The infrared scanning radiometer (ISR) on board Apollo 17 was used to measure the emission of heat from the Moon's surface. A sensitive thermometer was mounted at the focus of a telescope. Light from a small area (about 2 km²) of the Moon's surface enters the telescope through a mirror that oscillates back and forth to scan the surface of the ground track. After passing through various components of the instrument to a detector, the radiant energy of the light beam is changed into an electrical signal. This electrical signal is related to the temperature of the spot that is viewed by the telescope at any instant in time. The thermal properties so measured can then be correlated with known geographic and geologic features.

Scientific Results

Interpretation of the photographic products of the Apollo missions, augmented by the array of data obtained from the geochemical and other orbital experiments, has given rise to many new ideas about the configuration and origin of the lunar crust. The evolution of the Moon's crust is diagramed in figure 13 to show the temporal relationship of the major processes that affected the upper part of the crust.

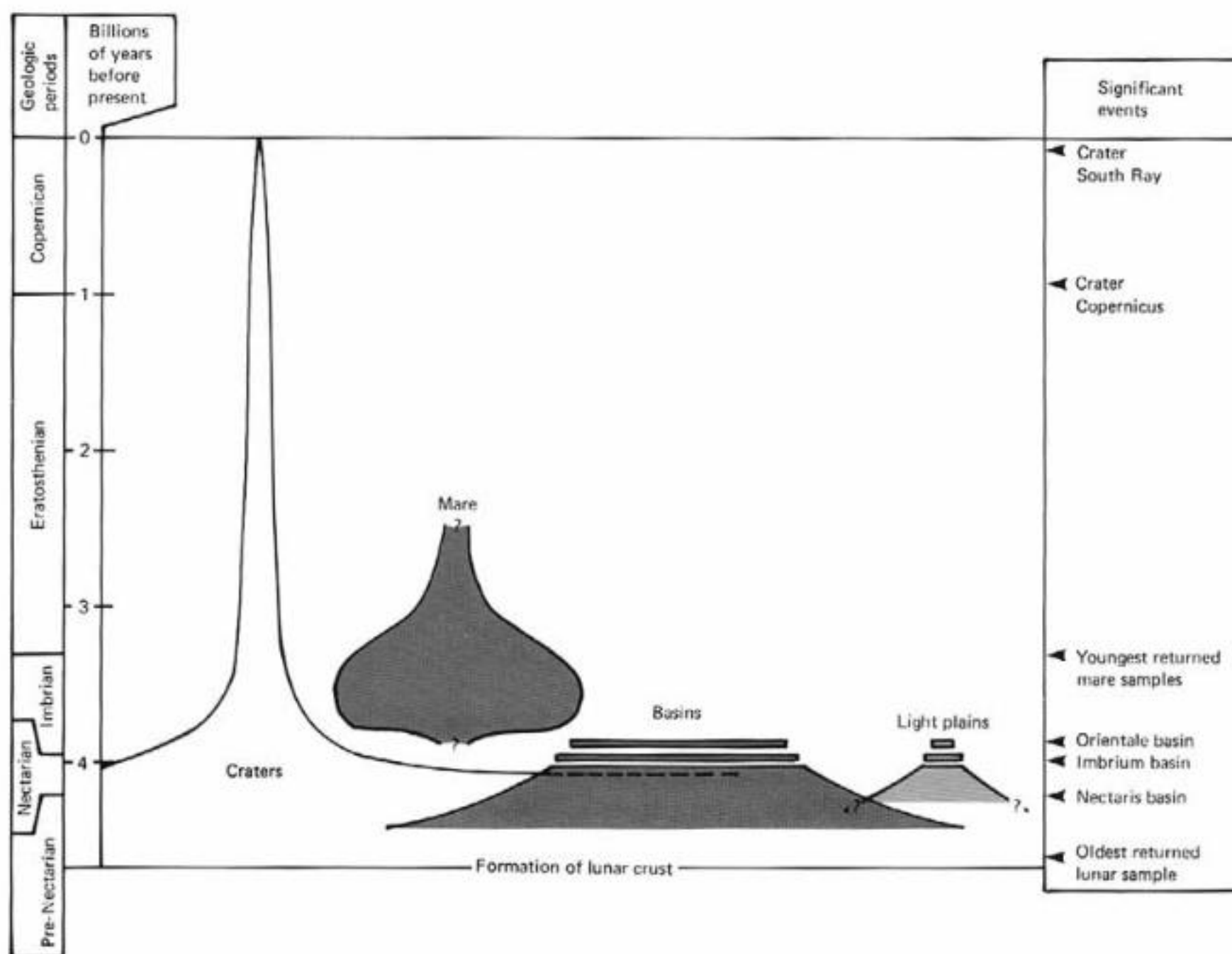
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[22] FIGURE 13 [above].- This diagram, conceived by D. E. Wilhelms, graphically summarizes the sequence in which the major rock types of the lunar surface accumulated. Time scales are shown on the left, and the position in time of representative events and of selected returned lunar samples is shown on the right. The horizontal scale has no time connotation. The areas covered on this diagram by each of the four types of deposit are roughly proportional to their present areal extent on the surface of the Moon. Craters probably began to form and crater deposits began to accumulate as soon as the crust had solidified about 4.6 billion years ago. However, the early part of the record is hidden, and the rate at which they formed is unknown. At the end of Nectarian time or the beginning of Imbrian time, about 4 billion years ago, the rate at which craters formed began to decrease abruptly. It has continued to decrease, but much less rapidly, to the present. Mare materials had a very different history. The oldest mare materials to be recognized among the returned samples or on the basis of photogeologic mapping are early Imbrian in age. They apparently postdate, although by little, the formation of the Imbrium basin. The bulk of the mare material accumulated during the Imbrian period, but photogeologic studies (including crater-counting methods) indicate that some is at least as young as Erastosthenian. All basin and light plains deposits are ancient-apparently none being younger than early Imbrian in age.-G.W.C.

[23]...much older than the surface of Earth, which has been so degraded and changed by dynamic forces that primary crustal material is now largely unrecognizable. The lunar samples, therefore, provide a clue to the possible composition of original rocks on Earth. Information from the returned samples can also be extrapolated to date rocks underlying the lunar surface far from the landing site areas. In this way a new understanding of the general history of the Moon is emerging.

The mare areas of the near side of the Moon appear to be 2 to 5 km below mean lunar radius; the far side appears to be as much as 5 km above mean radius. Basaltic lava flows (the "maria") fill most of the low-lying basins on the near side (fig. 14); thicker, low density rocks underlie the high-standing ("terra") regions found on both near and far sides. The marked difference between the dark lowland regions (maria) and the bright highland regions (terrae) was first noted by Galileo in 1609. The results from several of the Apollo orbital experiments have confirmed their essential difference (fig. 15). Laser altimetry and gravity tracking results have defined marked differences in elevation. Variations in Al/Si and Mg/Si ratios obtained from the X-ray fluorescence experiment have confirmed the

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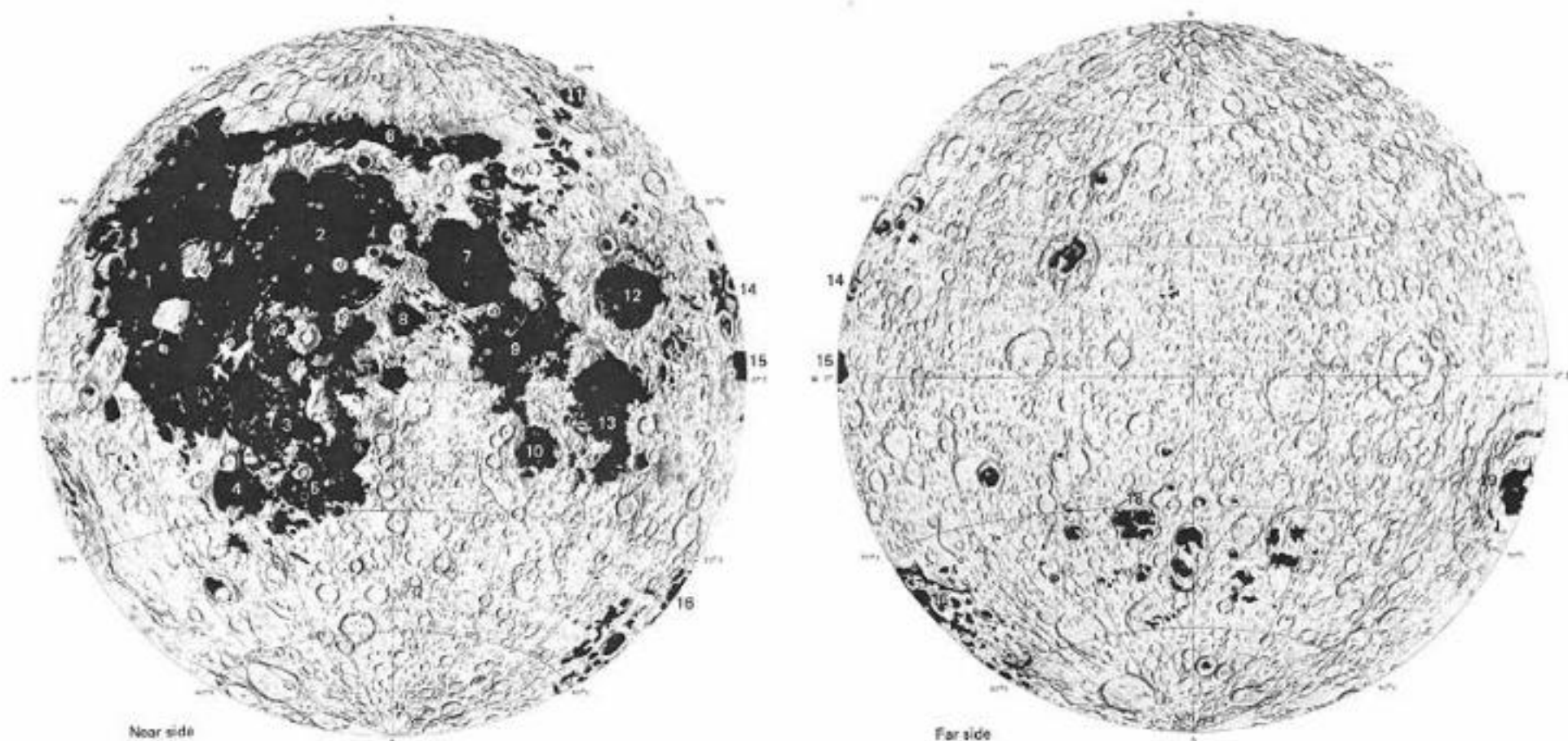
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Recent estimates of the thickness of the lunar crust based on orbital laser altimetry, S-band tracking data, and surface seismic information indicate the existence of 20 km of basalt overlying 20 km of anorthositic material-crust-under eastern Oceanus Procellarum, 5 km of crust under some of the circular mare basins, 48 km under the near-side highlands, and 74 km of crust under the far-side highlands (Kaula et al., 1974). Variation in thickness of the lunar crust may have been caused by early chemical differentiation of the crust soon after the Moon was locked to Earth by gravitational attraction.

Orbital and surface magnetometer measurements (Coleman et al., 1972a,b,c) correlate closely with the gamma ray highs and lows. The deflection of the solar wind observed over some limb areas by the subsatellite magnetometer are thought to be caused by regions of high magnetization in that part of the Moon.

Tracking of the spacecraft as they respond to gravity has shown that craters up to 100 km in diameter are deficient in mass; that is, they constitute gravity lows. On the near side, mare-filled craters more than 150 km in diameter have positive gravity anomalies (Sjogren, Wimberly, and Wollenhaupt, 1974). The anomalies are probably caused by the dense basaltic lava flows that fill the craters and the underlying denser materials in the lower part of the crust that were thrust upward by the impact.

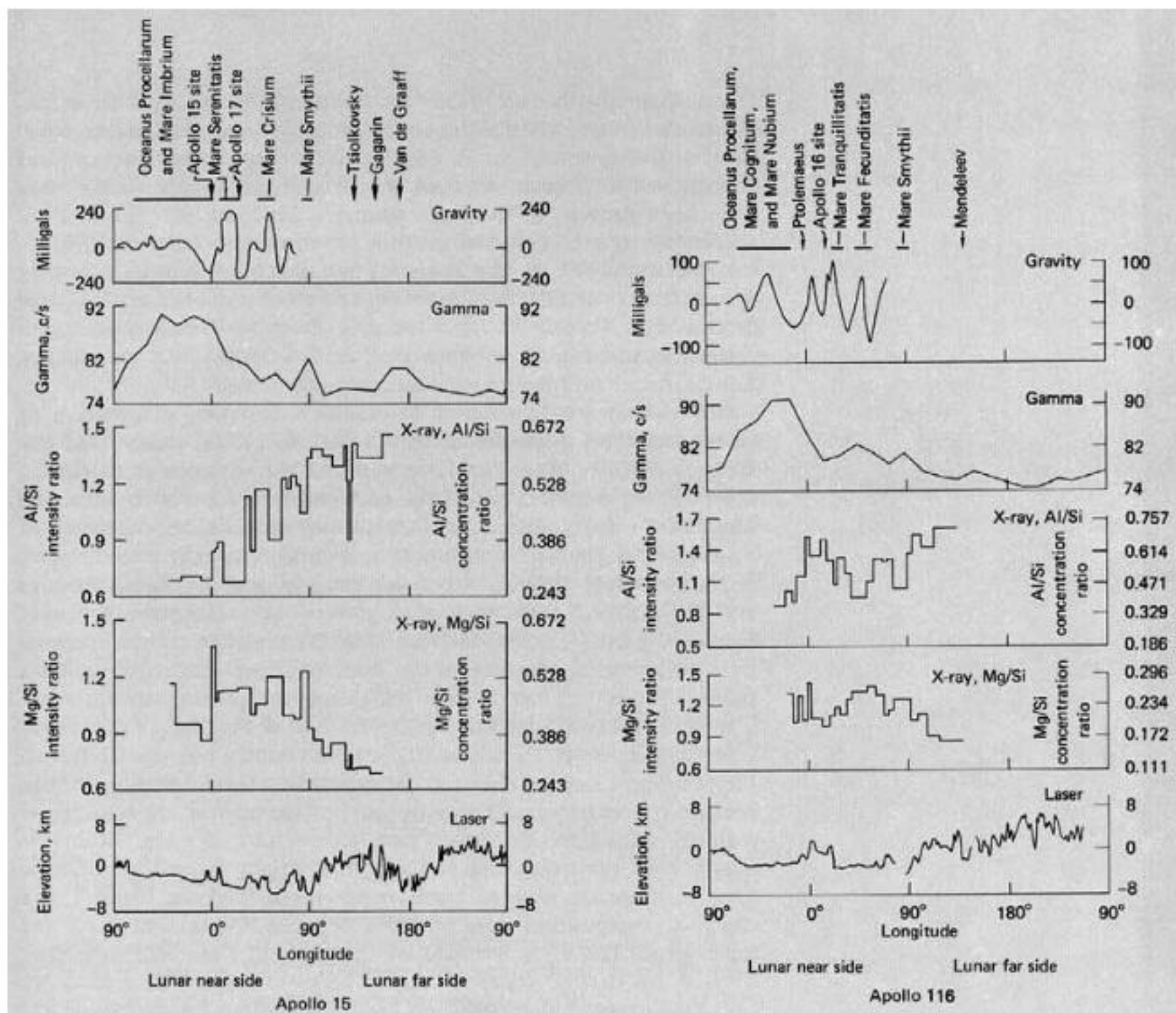
Basaltic lava flows occupy irregular mare areas, such as the very large one recognized as Oceanus Procellarum, as well as the many circular multiringed structures 150 km or more in diameter that are thought to have originated as impact basins (fig. 14). Among the best examples of...



[24] FIGURE 14 [above].- This highly simplified geologic map distinguishes between the two major types of lunar terrain. Mare areas are shown in black, and terra or highland areas are shown without overprint as they appear on "The Earth's Moon" [courtesy of the National Geographic Society]. The unequal distribution of mare materials is shown to advantage on this equal area projection. Also clearly evident is the tendency of mare materials to be concentrated within the margins of large multiringed circular basins. The Serenitatis (7), Crisium (12), Moscoviense (17), Ingenii (18), and Humboldtianum (11) are the best examples of...

Legend:

- 1 Oceanus Procellarum
- 2 Mare Imbrium
- 3 Mare Cognitum
- 4 Mare Humorum
- 5 Mare Nubium
- 6 Mare Frigoris
- 7 Mare Serenitatis
- 8 Mare Vaporum
- 9 Mare Tranquillitatis
- 10 Mare Nectaris
- 11 Mare Humboldtianum
- 12 Mare Crisium



[25] FIGURE 15 [above] .- Curves showing correlations of some physical and chemical properties recorded by elected remote sensing instruments carried in the SIM bay with topographic and geologic features. Left: Representative sensing curves plotted from data recorded along some of the Apollo 15 ground tracks. Right: The same types of data but along some of the Apollo 16 ground tracks. For purposes of location, selected geographic features are shown at the top of the graphs and degrees of longitude along the bottom.

These curves show many interesting relations including (1) the positive gravity anomalies (concentrations of mass or "mascons") marking the circular mare basins, (2) the high gamma radiation from the border between Oceanus Procellarum and Mare Imbrium, (3) the inverse relationship between ratios of Al/Si and Mg/Si, (4) the systematic change in these ratios from maria to terrae, and (5) the differences in elevation between mare areas (low) and terra areas (high). Another significant observation is that the east limb of the Moon near Mare Smythii is much lower in elevation than other areas along the Apollo 15 and 16 ground tracks. In fact, the mare areas on the front side decrease in elevation from the west limb at Oceanus Procellarum to the east limb at Mare Smythii.

[26]...impact basins with mare filling are Imbrium, Crisium, and Orientale. Other multiringed circular basins of probable impact origin are, however, devoid or nearly devoid of mare fill. Structural, geochemical, and topographic differences between the circular and irregular mare areas have been proven by the laser altimeter, lunar sounder, gamma ray spectrometer, and X-ray fluorescence experiments, as well as by photointerpretation. The circular maria are bounded by striking cliff-forming arcuate segments of crustal blocks while the irregular maria have low serrate edges. Positive gravity anomalies ("mascons") delineated by the S-band transponder experiment are associated with the impact basins but are absent over the irregular areas.

There are many hypotheses to explain the varying distribution of crustal materials documented by the Apollo orbital sensors and the samples returned from the lunar surface. The variation in thickness, composition, and elevation of the mare and terra regions, the increased gamma ray activity observed in the midfront and far sides, the increased magnetic and gamma ray measurements obtained over some limb areas, and the essential differences between irregular and circular mare basins and the highland areas all imply a controlling mechanism. A theory based on mantle convection (the internal circulation of hot material) gives a possible explanation for the observed sensor data and describes a possible controlling mechanism for the chemical, geophysical, and topographic variations. Very early in the history of the Moon's formation, when it was very hot and fluid, the mantle material was separated from the primordial melt by chemical differentiation. Lower density material became concentrated in the upper part of the mantle, whereas denser material settled in the lower part. Convection currents within the mantle then partially stripped the lighter weight material from some areas to cause the marked variation in crustal thickness, density, and chemical composition now observed between the present terra and mare areas. The areas stripped of lighter weight material were then flooded by basalts, which presently lie on a greatly thinned crust. Localized areas of increased concentrations in gamma ray and magnetic activity were caused by internal circulation and concentration of materials with higher magnetic and gamma ray properties. The mantle convection theory, however, is still being debated. True understanding of the development of the lunar crust may require years of additional study.

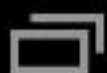
The mechanics of impact cratering have been studied intensively with the aid of the Apollo data. Craters ranging in size from the giant



Acknowledgments

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J.W.H.	James W. Head III Department of Geological Sciences Brown University Providence, R.I.
C.A.H.	Carroll Ann Hodges U.S. Geological Survey Menlo Park, Calif.
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If available, the Biographical Data Sheet provided background information for the Oral Historian to prepare for the interview. A project research historian submitted the data sheet on the date listed at the end of the file.

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Farouk El-Baz

i This page has some issues

Farouk El-Baz (Arabic: فاروق الباز, Egyptian Arabic: [faˈruːʔ elˈbæːz, fæˈruːʔ]) (born January 2, 1938) is an Egyptian American scientist who worked with NASA to assist in the planning of scientific exploration of the Moon, including the selection of landing sites for the Apollo missions and the training of astronauts in lunar observations and photography.

Currently, El-Baz is Research Professor and Director of the Center for Remote Sensing at Boston University in Boston, Massachusetts. He is Adjunct Professor of Geology at the Faculty of Science, Ain Shams University, Cairo, Egypt. He is also a member of the Board of Trustees of the Geological Society of America Foundation, Boulder, Colorado, a member of the Board of Directors of CRDF Global, and a member of the U.S. National Academy of Engineering, Washington, DC.

فاروق الباز

Farooq Al-Baaz



Born	January 2, 1938 (age 75) <div>Mansoura</div>
Citizenship	<div>Egypt</div> <div>United States</div>
Fields	Geology
Institutions	<div>NASA</div> <div>Boston University</div>
Alma mater	Missouri University of Science and Technology
Known for	Project Apollo
Notable awards	<div>NASA's Apollo Achievement Award</div> <div>Exceptional Scientific Achievement Medal</div> <div>Certificate of Merit of the World Aerospace Education Organization</div> <div>Republic of Egypt Order of Merit - First Class</div> <div>1989 Outstanding Achievement Award of the Egyptian American Organization</div> <div>1991 Golden Door Award of the International Institute of Boston</div>

Biography

Born on January 2, 1938 in the Nile Delta town of Zagazig.^[1] At the age of 20, he received a Bachelor of Science in chemistry and geology from Ain Shams University.^[1] In 1961, he received a Master of Science in geology from the Missouri School of Mines and Metallurgy (now Missouri University of Science and Technology).^[1] In 1964, he received a Doctor of Philosophy in geology from the Missouri University of Science and Technology^{[2][3]} after conducting research from 1962 to 1963 at the Massachusetts Institute of Technology.^[1] He has earned an Honorary Doctor of Science from New England College in 1989; a professional degree from the Missouri University of Science and Technology in 2002; an Honorary Doctor of Philosophy from Mansoura University in 2003; a Doctor of Laws from the American University in Cairo in 2004; and an Honorary Doctor of Engineering from the Missouri University of Science and Technology, also earned in 2004.^[1]

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Post-doctorate



El-Baz taught Geology at [Assiut University](#), Egypt (1958–1960) and the [Heidelberg University, Germany](#) (1964–1965). He joined the Pan American - U.A.R. Oil Company in 1966, where he participated in the discovery of El-Morgan, the first offshore oil field in the [Gulf of Suez](#).

NASA



Al-Baaz (right) training [Ronald Evans](#) and [Robert Overmyer](#)

From 1967 to 1972, El-Baz participated in the [Apollo Program](#) as Supervisor of Lunar Science Planning at Bellcomm Inc., a division of AT&T that conducted systems analysis for NASA. During these six years, he was secretary of the *Landing Site Selection Committee* for the Apollo lunar landing missions, *Principal Investigator of Visual Observations and Photography*, and chairman of the *Astronaut Training Group*. His outstanding teaching abilities were confirmed by the Apollo astronauts. While orbiting the Moon for the first time during [Apollo 15](#), Command Module Pilot [Alfred Worden](#) said, "After the King's [Farouk's nickname] training, I feel like I've been here before."^[4]

Also during the Apollo program, El-Baz joined NASA officials in briefing members of the press on the results of the lunar missions. His ability to simplify scientific jargon made his remarks on the program's scientific accomplishments often quoted by the media.

Post-Apollo



After the Apollo Program ended in 1972, El-Baz joined the [Smithsonian Institution](#) in [Washington DC](#) to establish and direct the Center for Earth and Planetary Studies at the [National Air and Space Museum](#). At the same time, he was elected as a member of the Lunar Nomenclature Task Group of the [International Astronomical Union](#). In this capacity, he continues to participate in naming features of the Moon as revealed by lunar photographic missions.

In 1973, NASA selected him as principal investigator of the Earth Observations and Photography Experiment on the [Apollo-Soyuz Test Project \(ASTP\)](#), the first joint American-Soviet space mission in July 1975. Emphasis was placed on

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Emphasizing the study of the origin and evolution of arid landscapes, he collected field data during visits to every major desert in the world. One of his significant journeys took place soon after the [United States](#) and [China](#) had normalized relations in 1979, when he coordinated the first visit by American scientists to the deserts of northwestern China. The six-week journey was chronicled in [National Geographic](#) and *Explorers Journal*. His research on the origin and evolution of the desert resulted in his election as Fellow of the [American Association for the Advancement of Science](#) (AAAS).

From 1982 until he joined Boston University in 1986, he was vice president of Itek Optical Systems of Lexington, Massachusetts. During these years he supervised the utilization of the Space Shuttle's *Large Format Camera* photographs.

During the past 20 years in his research at Boston University, El-Baz has utilized satellite images to better understand the origin and evolution of desert landforms. He is credited with providing evidence that the desert is not man-made, but the result of major climatic variations. His research uncovered numerous sand-buried rivers and streams in the Sahara based on the interpretation of radar images. These former water courses lead into depressions in the terrain, which he theorized must host groundwater. His analysis of these data resulted in the location of groundwater in the arid terrains of Egypt, Oman and the United Arab Emirates (U.A.E.), and perhaps [Darfur in Sudan](#)^[5] (unless it dried up).^[6]

El-Baz was elected fellow of the [Geological Society of America](#), the Academy of Sciences for the Developing World [TWAS](#), and to the [National Academy of Engineering](#) (USA). In 1999, the Geological Society of America Foundation (GSAF) established the Farouk El-Baz Award for Desert Research, to annually reward excellence in arid land studies. In 2007 the GSAF also established the Farouk El-Baz Student Research Award to encourage desert research.

He is married, has four daughters, and six grandchildren. El-Baz is the brother of [Osama El-Baz](#), senior advisor to Egypt's former president [Hosni Mubarak](#).

In April 2011, he joined the liberal [Free Egyptians Party](#), founded by the telecommunications tycoon [Naguib Sawiris](#).^[7]

Additional notes



- El-Baz piqued the interest of Biblical scholars around the world with his announcement of the so-called Kuwait River. The idea that a river once flowed across the deserts of Arabia, and somehow connected with the [Tigris](#) and/or [Euphrates River](#), seemed far-fetched. Yet evidence for such a river came from the satellite radar images taken during the 1994 mission of the [Space Shuttle Endeavour](#). Al-Baaz studied the images, and noticed that traces of a defunct river that crossed northern [Arabia](#) from west to east were visible beneath the sands, thanks to the ground-penetrating capabilities of the radar technologies. He called it the Kuwait River (also referred to as [Wadi Al-Batin](#), an extension of [Wadi Al-Rummah](#)), for that is where it apparently connected with the [Euphrates](#) or emptied into the [Persian Gulf](#).^[8]
- The popular [science fiction](#) television program *Star Trek: The Next Generation* featured a [shuttlecraft](#) named *El-Baz*.
- In a National Geographic documentary film in 2002, El-Baz proposed a new source for the shape of The Pyramids at Giza. El-Baz believes that the ancient Egyptians chose to bury their dead in pyramid shaped structures because they knew from an earlier nomadic life that monumental pyramidal landforms which abound in the Western Desert of Egypt, and evade erosion.
- In Episode 10 ("Galileo Was Right") of the TV series *From the Earth to the Moon*, (produced by [Tom Hanks](#) for [HBO](#)), his role in the training of the Apollo astronauts was featured in a segment entitled "The Brain of Farouk El-Baz." He was

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- In 1978 Al-Baaz was appointed Science Adviser to President [Anwar Sadat](#) of Egypt. He was charged with the selection of regions for land reclamation in the desert without detrimental effects on the environment. For his distinguished service, President Sadat awarded him [Egypt's Order of Merit](#) - First Class.
- He is the recipient of numerous honors and awards, including: the Golden Door Award of the International Institute of Boston; the Nevada Medal of the Desert Research Institute, and the Pioneer Award of the Arab Thought Foundation.

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- [Farouk El-Baz](#) [Official web site](#)
- [Boston University Center for Remote Sensing](#)

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فاروق الباز



الدكتور فاروق الباز

فاروق الباز ولد في **1 يناير 1938** وهو عالم مصري أمريكي عمل مع وكالة **ناسا** للمساعدة في التخطيط للاستكشاف العلمي للقمر ، كاختيار مواقع الهبوط لبعثات **أبولو** و تدريب رواد الفضاء على اختيارهم لعينات مناسبة من القمر واحضارها للتحليل والدراسة إلى الأرض.



نشأته وطريقه العلمي

ولد في حضان أسرة بسيطة الحال في قرية **طوخ الأفلام** من مدينة السنبلاوين محافظة الدقهلية ^[1]

حصل على شهادة البكالوريوس (كيمياء - جيولوجيا) في عام 1958 م من **جامعة عين شمس بمصر** . نال شهادة الماجستير في **الجيولوجيا** عام 1961 م من معهد علم المعادن ب**ميسوري** الأمريكية.

حصل على عضوية جمعية **سيجما كاي** (Sigma Xi) العلمية. كما نال شهادة الدكتوراه في عام 1964م وتخصص في **الجيولوجيا الاقتصادية**.

درس في جامعة ماساشوسيتس واستكشف كثيرا جيولوجيا الارض وزار أغلب المناجم في الولايات المتحدة الأميركية ^[بحاجة لمصدر]



المناصب العلمية

يشغل الدكتور فاروق الباز منصب مدير مركز تطبيقات الاستشعار عن بعد في جامعة بوسطن في بوسطن بالولايات المتحدة الأمريكية.

كان قبل ذلك نائبا للرئيس للعلم والتكنولوجيا في مؤسسة آيكة لأجهزة التصوير بمدينة لكسنتوتن، بولاية ماساشوسيتس.



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منذ عام 1973 إلى أن التحق بمؤسسة آيتك عام 1982، قام الدكتور الباز بتأسيس وإدارة مركز دراسات الأرض والكواكب في المتحف الوطني للجو والفضاء بمعهد سميثونيان بواشنطن عاصمة الولايات المتحدة الأمريكية . وعمل بالإضافة إلى ذلك مستشارا علميا للرئيس السادات ما بين 1978 – 1981.

منذ عام 1967 إلى عام 1972 عمل الدكتور فاروق الباز بمعامل بلّ بواشنطن كمشرف على التخطيط للدراسات القمرية واستكشف سطح القمر.

وفي خلال هذه السنوات، اشترك في تقييم برنامج الوكالة الوطنية للطيران والفضاء "ناسا " للرحلات المدارية للقمر. بالإضافة إلى عضويته في المجموعات العلمية التدمعية لإعداد مهمات رحلات أبول على سطح القمر. كما كان رئيساً لفريق تدريبات رواد الفضاء في العلوم عامة وتصوير القمر خاصة.

شغل منصب رئيس أبحاث التجارب الخاصة بالمراقبات الأرضية من الفضاء والتصوير وذلك في مشروع الرحلة الفضائية المشتركة أبولو – سويوز في عام 1975.

مشواره الأكاديمي

قام الدكتور الباز بتدريس علم الجيولوجيا في جامعات:

- اسيوط** بمصر من عام 1958 – 1960
- جامعة ميسوري** بأمريكا من عام 1963 إلى 1964 و
- جامعة هايدلبرج** في ألمانيا من عام 1964 - 1965

في عام 1966 عمل في الاستكشاف عن النفط في **خليج السويس** بقسم التنقيب في شركة بان أمريكان وذلك قبل التحاقه بمعامل بل في عام 1967.

خلال الأعوام بين 1967 و 1973 عمل على اختيار 16 منطقة مميزة على القمر لهبوط رواد الفضاء عليها بغرض الحصول على أكبر مكسب علمي عن التكوين الجيولوجي للقمر ومعرفة تاريخ تكوين القمر وعلاقة تكوين قمر بتكوين الأرض. خلال تلك الفترة عمل مباشرة مع رواد فضاء كثيرين مثل ديك جوردن Dick Gordon وماتجلي Mattingly و**جيم لوفل** Lovell والفريد هايز Haise و**ستوارت روزا** Stu Rooza وميتشل Mitchell وكذلك **ألان شيبارد** Shepard، وأعدهم الإعداد العلمي السليم للقيام بمهمتهم على القمر وكانوا يسمونه الملك "The King".

في عام 1973 م عمل كرئيس الملاحظة الكونية والتصوير في مشروع أبولو - سويوز Apollo- soyz الذي قام بأول مهمة أمريكية سوفيتية في تموز 1975 م.

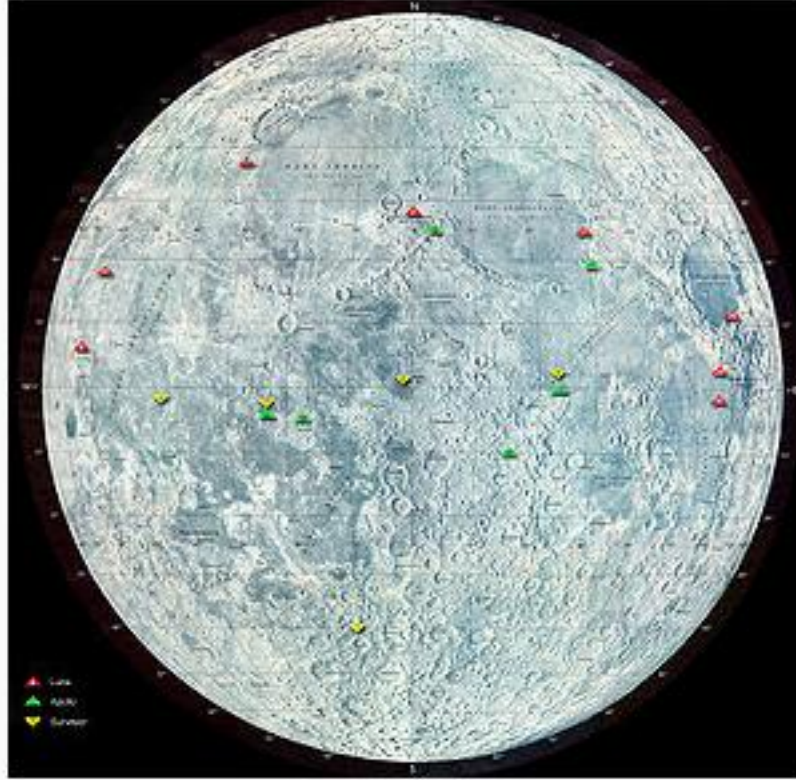
في عام 1986 انضم إلى **جامعة بوسطن**، في مركز الاستشعار عن بعد باستخدام تكنولوجيا الفضاء في مجالات الجيولوجيا والجغرافيا، وقد طور نظام استخدام الاستشعار عن بعد في اكتشاف بعض الآثار المصرية.

نشاطه في ناسا NASA





نشاطه في ناسا NASA



تبين العلامات الخضراء مواقع هبوط بعثات أبولو المأهولة على القمر وهي من ضمن 24 موقع على القمر اقترحها الباز لناسا.

قام فاروق الباز برعاية عمل رواد الفضاء من وجهة جيولوجيا القمر في إطار برنامج **أبولو** خلال السنوات 1967 حتي 1972. وكان خلال تلك السنوات الست سكرتير لجنة اختيار مواقع الهبوط على القمر ورئيسا لمجموعة تدريب الرواد. تخصص تدريبه لرواد الفضاء في انتقاء عينات مناسبة من أحجار القمر وترتيبه ، بقرض إحضارها إلى الأرض لتحليلها ودراستها . وحاز إعجاب رواد الفضاء العاملين معه حيث كان يتميز بشرح يسهل فهمه وشيق في نفس الوقت. مما يشهد له ماقاله رائد الفضاء لبعثة **أبولو 15 ألفريد ووردن** أثناء وجوده في مدار حول القمر حيث كان يقود مركبة الفضاء، قال : " أتذكر شرح "الملك " للقمر - وهو اسم فاروق المتداول في ناسا - أشعر كما لو كنت هنا من قبل !"

كما كان فاروق الباز يرافق أعضاء مجموعة **ناسا** عند لقائهم بالصحفيين للإعلام عن نتائج رحلات **أبولو**. وكانت قدرته على تبسيط التعبيرات العلمية الدقيقة في الأوساط الإعلامية محط تقديرهم، وكثيرا ما كانوا ينشرون بعضا من كلماته.



سورة الفاتحة مع أبولو 15



ديفيد سكوت أثناء التدريب الجيولوجي (مع فاروق الباز) في **نيومكسيكو** في 19 مارس 1971.

تميزت رحلة أبولو 15 بتطوير وتحسينات متعددة لمركبة الفضاء و **العربة القمرية** حتى أن الرواد وكل العاملين في **ناسا** قلقين على نجاح الرحلة . فأشار الباز إليهم بأن يأخذوا معهم سورة الفاتحة لتحميمهم ويكون الله معهم ، وكانوا متعلقين بالحصول على أي شيء يستبشرون به وبطمئنتهم على أداء رحلتهم والعودة بسلام إلى الأرض. وفعلا قام فاروق الباز بطبع سورة الفاتحة على ورقة في بيته ، وقام هو وبناته بتسجيل أسمائهم على الورقة أيضا ، ليس هنا فقط بل قام مع بناته بالصلاة يوم انطلاق الرحلة والدعاء بأن تتم رحلة الرواد على خير . ثم قام بحفظ سورة الفاتحة في حافظة من البلاستيك وسلمها لألفريد ووردن . وكان الرواد شاكرين له . والحمد لله تمت الرحلة بسلام .



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مؤلفاته

كتب د. الباز 12 كتابا، منها أبولو فوق القمر، الصحراء والأراضي الجافة، حرب الخليج والبيئة، أطلس لصور الأقمار الصناعية للكويت، **ممر التعمير في الصحراء الغربية** بمصر. يشارك في المجلس الاستشاري لعدة مجلات علمية عالمية. كتب مقالات عديدة، وتمت لقاءات كثيرة عن قصة حياته وصلت إلى الأربعين، منها "النجوم المصرية في السماء"، "من الأهرام إلى القمر"، "الفتى الفلاح فوق القمر"، وغيرها.

عضويته في الجمعيات العلمية

انتخب د. الباز كعضو، أو مبعوث أو رئيس لما يقرب من 40 من المعاهد والمجالس واللجان، منها انتخابه مبعوثا لأكاديمية العالم الثالث للعلوم TWAS عام 1985 م، وأصبح من مجلسها الاستشاري عام 1997 م، وعضوا في مجلس العلوم والتكنولوجيا الفضائية، ورئيسا لمؤسسة الحفاظ على الآثار المصرية، وعضوا في المركز الدولي للفيزياء الأكاديمية في **اليونسكو**، مبعوث الأكاديمية الأفريقية للعلوم، زميل الأكاديمية الإسلامية للعلوم **بباكستان** ، وعضوا مؤسساً في الأكاديمية العربية للعلوم **بليبان**، ورئيسا للجمعية العربية لأبحاث الصحراء.

تكريمه

حصل د. الباز على ما يقرب من 31 جائزة، منها: جائزة إنجاز **أبولو** ، الميدالية المميزة للعلوم، جائزة تدريب فريق العمل من **ناسا**، جائزة فريق علم القمريات، جائزة فريق العمل في مشروع أبولو الأمريكي السوفييتي، جائزة ميريت من الدرجة الأولى من الرئيس **أنور السادات** ، جائزة الباب الذهبي من المعهد الدولي في **بوسطن**، الابن المميز من محافظة **الدقهلية**، وقد سميت مدرسته الابتدائية باسمه، وهو ضمن مجلس أمناء الجمعية الجيولوجية في أمريكا، المركز المصري للدراسات الاقتصادية، مجلس العلاقات المصرية الأمريكية. وقد أنشأت الجمعية الجيولوجية في أمريكا جائزة سنوية باسمه أطلق عليها "جائزة فاروق الباز لأبحاث الصحراء".

تبلغ أوراق د. الباز العلمية المنشورة إلى ما يقرب من 540 ورقة علمية، سواء قام بها وحيدا أو بمشاركة آخرين، ويشرف على العديد من رسائل الدكتوراه.

جال د. فاروق العالم شرقا وغربا، وحاضر في العديد من المراكز البحثية والجامعات، أحب الرحلات الكشفية، وجمع العينات الصخرية منذ الصغر. هو شقيق **أسامة الباز**.

من بعض أوسمته

حاز فاروق الباز على العديد من الجوائز العلمية من **أمريكا** ومن جامعات وهيئات علمية كثيرة حول العالم ، ومن ضمنها :

- جائزة الاستحقاق من الدرجة الأولى المصرية من الرئيس **محمد أنور السادات**،
- جائزة الامتياز العلمي والتكنولوجي من **ناسا**.

Dr. Farouk El-Baz

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Dr. Farouk El-Baz' Official Web Site



العربية لغة حياة

تقرير تحديث تعليم اللغة العربية

سلمو صاحب السمو الشيخ محمد بن راشد آل مكتوم نائب رئيس دولة الإمارات العربية المتحدة، رئيس مجلس الوزراء، حاكم دبي، تقرير تحديث تعليم اللغة العربية "العربية لغة حياة" يوم الاثنين الموافق 13 مايو 2013 بناء على توجيهات كريمة من سموه خلال اللقاء الخاص

بم إعلان تشكيل لجنة تحديث تعليم اللغة العربية بوجهات كريمة من صاحب السمو الشيخ محمد بن راشد آل مكتوم نائب رئيس دولة الإمارات العربية المتحدة، رئيس مجلس الوزراء، حاكم دبي، رعاه الله، في 23 أبريل 2012 خلال الجلسة الأولى لمجلس محمد بن راشد للسياسات. وجاء الإعلان ضمن منظومة متكاملة من المبادرات الهادفة إلى تعزيز مكانة اللغة العربية في دولة الإمارات العربية المتحدة، وقد هدفت هذه المنظومة من المبادرات إلى تكريس رؤية الإمارات 2021 التي تهدف إلى جعل دولة الإمارات مركزاً للتميز في اللغة العربية باعتبارها أداة رئيسية لتعزيز الهوية الوطنية لدى الأجيال القادمة

وتعد لجنة تحديث تعليم اللغة العربية مبادرة لوضع تصور جديد في تعلم اللغة العربية وتعليمها، وتم تشكيل هذه اللجنة من خبراء عربيين وسياسيين وعلمانيين بارزين، لتقديم تقرير شامل بشأن تحديث تعليم اللغة العربية، وإفراح أساليب تعليمية وأليات متطورة لتبني مناهج جديدة تساهم في تعزيز استخدام اللغة العربية وتعليمها للأجيال والناطقين بها. وقد بنى هذا التقرير على دراسة علمية وعملية ومبدئية معمقة لواقع تعليم اللغة العربية وأساليب تعليمها وتدريبها، والتحديات التي يواجهها في الوطن العربي والعالم أعضاء اللجنة الدكتور طارق أمان فضيلة الإمام الأكبر الدكتور أحمد الطيب دولة الدكتور عبد السلام المنعالي الدكتور حسن الشافعي الأستاذ طارق شوشة الدكتور ياسر سليمان الدكتور روناك جسيما الدكتور محسن الرفعة الدكتور فاطمة البريكالي الدكتور ميرة القنبر الدكتور بيرون جيهان الدكتور نايف المطوع الدكتور وليم غراذارا

اقرأ المزيد



Arabic is not dead but teaching must improve, UAE report shows

The National
Mohammed N Al Khan
May 14, 2013

A panel of international researchers was commissioned six months ago by Sheikh Mohammed bin Rashid, Vice President and Ruler of Dubai, to investigate the state of Arabic. The team presented their findings to the Ruler yesterday in a report, Arabic for Life.

"Arabic is not in danger or on the verge of disappearing," Dr Farouk El Baz, the chairman of the commission, said.
"We have seen people bring back languages that have been dead for thousands of years. Arabic is not dead, so it should be much easier to improve it.
"We need to teach it as you would a science - start with the basics and slowly build on that," added Dr El Baz, a former Nasa scientist for the Apollo missions who is now a research professor and director of the Centre for Remote Sensing at Boston University.

Arabic for Life outlined five key areas in need of attention to revive the Arabic language. The first suggestion was to improve the curriculum in schools. Teachers should also be retrained to teach Arabic and teach other subjects in the language. A culture of reading Arabic should be fostered and the media should play a bigger role in supporting the teaching of the language.

The final area highlighted was the need to teach Arabic to non-native speakers. "Governments must reflect their concern about the education sector by allocating a substantial part of their budget for it," Dr El Baz said. Another member of the commission, Dr Yasir Suleiman, a professor of modern Arabic studies and fellow at King's College at the University of Cambridge, said schools had to implement better administration, hire better teachers and encourage parents to get involved.

"Arab countries are in a situation where we give our teachers the fish rather than teach them how to fish, and we want them to teach how to make fishing rods," Dr Suleiman said. The material used to teach the language may be putting students off at an early stage, according to Dr Mohsin Al Ramly, a philosophy professor at St Louis University in Madrid. "What we do traditionally is we start with the old texts that can be hundreds of years old, which can surprise students and alienate them, then we advance to modern texts," Dr Al Ramly said. "This

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Dr. Farouk El-Baz is Director of the Center for Remote Sensing and Research Professor at the Departments of Archaeology and Electrical & Computer Engineering, and Associated Faculty at the Department of Earth and Environment, Boston University, Boston, MA, U.S.A. He also serves as faculty advisor to two Boston University student organizations: the "1001 Wells for Darfur," and the "Egyptian Club."

He was born on 2 January 1938 in the Nile Delta town of Zagazig. Twenty years later, he received a B.S. in chemistry and geology from Ain Shams University. In 1961, he received a M.S. degree in geology from the Missouri School of Mines and Metallurgy, Rolla, MO; his performance won him membership in the honorary scientific societies of Sigma Xi and Sigma Gamma Epsilon. In 1964 he received a Ph.D. in geology from the University of Missouri-Columbia after conducting research in 1962-1963 at the Massachusetts Institute of Technology (MIT), Cambridge MA.

In recognition of his professional standing, he received the following honorary degrees: Doctor of Science from the New England College, Henniker, NH (1989); Professional Degree from the University of Missouri-Rolla (2002); Doctor of Philosophy from Mansoura University, Mansoura, Egypt (2003); Doctor of Laws from the American University in Cairo (AUC), Egypt (2004); Doctor of Engineering from the University of Missouri-Rolla – now the Missouri University of Science and Technology, MUST (2004); Doctor of Humane Letters from the American University of Beirut (AUB), Lebanon (2009).

Dr. El-Baz was elected to membership of the following academies of science and technology: Academy of Sciences for the Developing World (TWAS); African Academy of Sciences (AAS); Arab Academy of Sciences (AAS); Islamic World Academy of Sciences (IAS); Missouri Academy of Sciences; Palestine Academy for Science and Technology; Royal Moroccan Academy Hassan II of Science and Technology, Rabat; and the U.S. National Academy of Engineering (NAE).

His professional career began by teaching geology at Asyut University, Egypt (1958-1960) and Heidelberg University, Germany (1964-1965). In 1966, he joined the Pan American – U.A.R. Oil Company, where he participated in the discovery of El-Morgan, the first offshore oil field in the Gulf of Suez.



*Receiving honorary degree from
AUB, Beirut, Lebanon.*



From 1967 to 1972, Dr. El-Baz participated in the Apollo Program as Supervisor of Lunar Science Planning at Bellcomm Inc., a division of AT&T that conducted systems analysis for NASA Headquarters in Washington DC. During these six years, he was Secretary of the Landing Site Selection Committee for the Apollo missions, Principal Investigator of Visual Observations and Photography, and Chairman of the Astronaut Training Group of the Apollo Photo Team. His outstanding teaching abilities were confirmed by the Apollo astronauts; while circling the Moon for the first time during Apollo mission 15, Command Module Pilot

DIRECTOR

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RECENT NEWS

Use of Radar Data Reveals the Ancestral Course of Wadi El-Arish, Raising the Possibility of Sustainable Agriculture in the Sinai Peninsula

During the Apollo years, Dr. El-Baz joined NASA officials in briefing members of the press on the results of the lunar missions. His appeal resulted from an ability to simplify complex issues in clear, succinct and easily understood words. His remarks on the scientific accomplishments were regularly quoted by the media during the Apollo missions. At that time, he became a naturalized U.S. citizen in April 1970.



Surrounded by Apollo Command Module Pilots (from left): Michael Collins (Apollo 11), Richard Gordon (Apollo 12), Stuart Roosa (Apollo 14), and Alfred Worden (Apollo 15) at a 1994 "Salute to Apollo" in Oshkosh, Wisconsin.

In Episode 10 ("Galileo Was Right") of the TV series "From the Earth to the Moon," produced by Tom Hanks for HBO, his role in the training of the Apollo astronauts was featured in a segment entitled: "The Brain of Farouk El-Baz." In his honor, the popular television program "Star Trek: The Next Generation" featured a shuttle craft named "El-Baz".



Examining Apollo exhibit at NASM.

After the Apollo Program ended in 1972, he joined the Smithsonian Institution in Washington DC to establish and direct the Center for Earth and Planetary Studies (CEPS) at the National Air and Space Museum (NASM). At the same time, he was elected member of the Lunar Nomenclature Task Group of the International Astronomical Union (IAU). In this capacity, he continues to participate in naming features of the Moon as revealed by lunar photographic missions.



Star Trek's shuttle "El-Baz".

In 1973, NASA selected him as Principal Investigator of the Earth Observations and Photography Experiment on the Apollo-Soyuz Test Project (ASTP), the first joint American-Soviet space mission of July 1975. Emphasis was placed on photographing arid environments, particularly the Great Sahara of North Africa and the Arabian Peninsula, in addition to other features of the Earth and its oceans.



With ASTP crew from left to right Tom Stafford, Vance Brand, and Deke Slayton, and during a visit to Qatar with former Emir, Sh. Khalifa Al Thani.

Emphasizing the study of the origin and evolution of arid landscapes, he collected field data during visits to every major desert on Earth. One of his significant journeys took place, soon after the United States and China had normalized relations in 1979, when he coordinated the first visit by American scientists to the deserts of northwestern China. The six-week journey was chronicled in National Geographic and the Explorers Journal. His research on the

origin and evolution of the desert resulted in his election as a Fellow of the American Association for the Advancement of Science (AAAS), and President of the Arab Society for Desert Research.

Prior to embarking on extensive field trips to harsh deserts, Dr. El-Baz analyzed space photographs utilizing innovative techniques to select sites for detailed ground investigation. He first used this approach in the Western Desert of Egypt and soon applied the method to study deserts in Kuwait, Qatar, United Arab Emirates, Sultanate of Oman, the deserts of China, and the Rajasthan of India.



With Sh. Hamad Bin Khalifa Al Thani, Emir of Qatar (left), Sh. Dr. Sultan Al Qasimi, Ruler of Sharjah, U.A.E. (center), and Sh. Mohammed Bin Rashid Al-Maktoum, Vice President and Prime Minister of the U.A.E., Ruler of Dubai (right).

Dr. El-Baz served his native land as Science Advisor to the late Egyptian President Anwar Sadat from 1978 to 1981. Because of population growth and the attendant food and fiber requirements, President Sadat believed that Egyptians should not continue to be confined within the Nile Valley and must reclaim more land from the desert.



Dr. El-Baz was assigned the task of selecting desert tracts to develop, without detriment to their environment. He traveled to Egypt's far corners and

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With President Anwar Sadat of Egypt, and lecturing at his ancestral village.

Dr. El-Baz was assigned the task of selecting desert tracts to develop, without detriment to their environment. He traveled to Egypt's far corners and described each region's natural resources and how they could be appropriately used. The many projects that began during those four years continue to help the people of Egypt today. In 1995, the Governor of the Province of Dakahliya, in the eastern part

of the Nile Delta, gave him the "Distinguished Son of Dakahliya Award" and inaugurated the "Farouk El-Baz Primary School" in his ancestral village of Toukh El-Aqlam in the eastern Nile Delta.

His desert research, spanning four decades, helped to dispel the public misconception that deserts were man-made and explained how arid lands originated and evolved in response to global climatic variations over thousands of years. His research methods are now commonly replicated in desert studies throughout the world.

From 1982 to 1986, Dr. El-Baz was Vice President of Science and Technology at Itek Optical Systems, Lexington, MA. He oversaw the application of data from the Space Shuttle's Large Format Camera. The photography of this advanced system assisted greatly in his program of desert study from space.



Examining the Shuttle's Large Format Camera lens.

He was elected Fellow of the Third World Academy of Sciences (TWAS) in 1985, and became a member of its Council in 1997. He represents the Academy at the Non-Governmental Unit of the Economic and Social Council (ECOSOC) of the United Nations (UN), New York.

In 1986 he joined Boston University as Research Professor and Director of the Center for Remote Sensing to promote the use of space technology in the fields of archaeology, geography and geology. Under his leadership, the Center has grown to become a leading force in the applications of remote sensing technology to environments around the world. In 1997, NASA selected it as a "Center of Excellence in Remote Sensing."



The Gulf War of 1991 presented an opportunity for Dr. El-Baz to disseminate knowledge of the desert terrain with emphasis on the effects of environmental disturbances. As chairman of the committee on

Environmental Hazards and Global Change of the TWAS, he led a team of scientists on a fact-finding mission to six Gulf States. His findings were reported in the media throughout the world including on the Evening News of the British Broadcasting Corporation (BBC) and interviews on CBS News and CNN. Print media interviews with Dr. El-Baz appeared in the New York Times, Washington Post, Boston Globe, and news magazines such as Time and Newsweek.

Research at the Center has particularly pushed forward the frontiers of applying remote sensing in archaeology. For example, Dr. El-Baz developed a methodology for nondestructive investigation of a sealed chamber containing a disassembled boat at the base of the Great Pyramid in Giza, Egypt. He reported the results of this unique investigation in National Geographic and American Scientist, as well as many print, radio and television interviews. He also contributed an article on worldwide applications of remote sensing to archaeology in the "1991 Yearbook of Science and the Future" of the Encyclopaedia Britannica, and another to the August 1997 issue of Scientific American.

Throughout his career, Dr. El-Baz has succeeded in conveying the excitement of scientific research and the importance of using advanced technology. One of his efforts resolved the 1995 controversy about the crowd size in Washington DC's "Million Man March". He estimated the number of participants in the march (more than 870,000 individuals) using the same computer techniques applied to counting sand dunes in the desert.



"Million Man March" team of Boston University graduate students.

Dr. El-Baz is well known as a pioneer in the application of space-borne data to ground-water exploration. He utilizes satellite images to identify fracture zones, and radar data to reveal sand-buried courses of former rivers. He successfully applied these methods in the arid lands of North Africa and the Arabian Peninsula. His findings alleviated shortages of ground water in areas of dire need. This won him the M.T. Halbouty Human Needs Award of the American Association of Petroleum Geologists (AAPG). He was appointed Senior Advisor to the World Bank/UN World Commission on Water for the 21st Century. He was also appointed Environment Ambassador by the Euro-Arab Environment Organization, and Honorary President of the Arab Union for the Protection of the Environment.

rock layers below. He was able to take the results to local officials, with the support of the United Nations. As well drilling became viable, students of Boston University, under the "1001 Wells for Darfur" initiative, began to collect funds to drill one well (at the cost of \$10,000) in the name of Boston University students.

Dr. El-Baz is the author or editor of landmark books on the use of space photography to define geological features, including: The Moon as Viewed by Lunar Orbiter (1970), Apollo Over the Moon (1978), Astronaut Observations from the Apollo-Soyuz Mission (1978), Egypt as Seen by Landsat (1979), ASTP Summary Science Report: Visual Observations and Photography (1979), Desert Landforms of Southwest Egypt: A Basis for Comparison with Mars (1982), Deserts and Arid Lands (1984), Physics of Desertification (1986), Remote Sensing and Resource Exploration (1989), The Gulf War and the Environment (1994), The Arab World and Space Research: Where do We Stand (1998), Ground Water Potential of the Sinai Peninsula (1998), Atlas of the State of Kuwait from Satellite Images (2000), Wadis of Oman: Satellite Image Atlas (2002), Sultanate of Oman: Satellite Image Atlas (2004), Remote Sensing in Archaeology (2007), and Development Corridor: Securing a Better Future for Egypt (2007). He has contributed over 250 scientific papers to professional journals, supervised numerous graduate students, and lectured at academic institutions and research centers worldwide.



With University of Alexandria students.



With Star of Science Zied Chaari of Tunisia.

Dr. El-Baz chaired several scientific committees including the U.S. National Committee for Geological Sciences of the National Academy of Sciences (NAS), the Charles Stark Draper Prize Award Committee of the National Academy of Engineering (NAE), and the Steering Committee of the Keck Futures Initiative on Imaging Sciences of the National Academies. He also served on the committees on the Grand Challenges for Engineering of the NAE, the U.S. National Committee of the International Year of Planet Earth (IYPE), the International Geological Program (IGCP) of the International Union of Geological Sciences (IUGS) of UNESCO, Paris, the Advisory Committee of the Great-Man Made River Prize of UNESCO, the Advisory Council on Science and Technology, Cairo, Egypt, the Royal Scientific Society, Amman, Jordan, and was Senior Advisor to Techno Park, Dubai, U.A.E. He also served on the Board of Trustees of the Geological Society of America (GSA), the Library of Alexandria, the Arab Science and Technology Foundation (ASTF), the Egyptian Center for Economic Studies, the Egyptian-American Affairs Council, the Moroccan-American Council, the World Affairs Council of Boston, the RAND-Qatar Policy Institute in Doha, Qatar, the University of the Middle East, and Mentor Arabia, Beirut, Lebanon. He also serves as judge of the "Stars of Science" innovation

competition, Doha, Qatar. He continues to serve on the boards of Arab American National Museum, the Future University in Khartoum, Sudan, the Center for Technological Innovation, the Civilian Research and Development Foundation (CRDF Global), the Advisory Council of EXPAC, Aramco Oil Company, Dhahran, Saudi Arabia, Chair of the Advisory Board of ICON Consulting Company, Dubai, U.A.E., Chair of the specialist group for Enhancing Arabic Language Use of the Dubai Arabic Language Initiative, and member for the Advisory Board of the Arab Common Exchange, Al Khobar, Saudi Arabia. He also serves on the editorial boards of several international professional journals, and is a member of many national and international professional societies and a Fellow of the Geological Society of America, the American Association for the Advancement of Science, the Royal Astronomical Society (London), and the Explorers Club (New York).



Library of Alexandria lecture on the Development Corridor.

Dr. El-Baz has won numerous honors and awards, including NASA's Apollo Achievement Award, Exceptional Scientific Achievement Medal, and Special Recognition Award, the University of Missouri Alumni Achievement Award for Extraordinary Scientific Accomplishments, the Certificate of Merit of the World Aerospace Education Organization, the Golden Door Award of the International Institute of Boston, the Award for Public understanding of Science and Technology of the American Association for the Advancement of Science, the Arab Republic of Egypt Order of Merit – First Class, the Nevada Medal, the Pioneer Award of the Arab Thought Foundation, the Golden Award of the Supreme Council of Antiquities (Cairo, Egypt), the Best Letter Award of the Remote Sensing and



Receiving award from Dr. James Fletcher, NASA Administrator.

Photogrammetry Society of London, the World Water Masters Award of the International Desalination Association (IDA), and the Most Influential Alumnus of the Missouri University of Science and Technology (MUST), the 2013 Caroline and Charles Ireland Distinguished Visiting Scholar Prize of the University of Alabama at Birmingham (UAB).

In 1999, the Geological Society of America (GSA) established the "Farouk El-Baz Award for Desert Research," an annual award aimed at rewarding excellence in arid land studies by experts worldwide. It was followed by the "Farouk El-Baz Student Award" to be presented annually to one male and one female graduate student to encourage desert research throughout the world.

In 2009, his name was given to a teaching and research laboratory as "The Farouk El-Baz Center for Remote Sensing and Geographic Information Systems" at Port Said University, Egypt. Furthermore, the "El-Baz Award for Excellence in Organizational Sustainability" was initiated in 2011 by the Hamdan Bin Mohammed E-University, Dubai, United Arab Emirates.



Ahmed Gaber receiving GSA Student Award in 2011.

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Ahmed Gaber receiving GSA Student Award in 2011.



Dr. El-Baz travels often to the Middle East and North Africa to acquire and spread knowledge about the desert. Following the 25 January revolution in Egypt, he has returned often to encourage the young generation of students, and increase the participation of youth in future affairs of the country. He lectures on the potential for development of Egypt's deserts in the future to strengthen the economy and open new vistas for development. Furthermore, he initiated a volunteer group of university students to participate in illiteracy eradication in poor sections of cities, and in villages and oases.

He and his wife, Patricia, have four daughters: Monira (Mika), Soraya, Karima, and Fairouz. They also have seven grandchildren: Yasmeen, Alia, Billy, Ian, Sarah, Ava and Jack.

NASA FAMILY





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